U.S. Environmental Protection Agency

Draft 2000 Strategic Plan

"The mission of the United States
Environmental Protection Agency
is to protect human health,
and to safeguard the natural environment
– air, water, and land –
upon which life depends."

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Chapter 1: Introduction

EPA's mission—to protect human health and to safeguard the natural environment—is vital to the nation's welfare. Our quality of life, our economic prosperity, and the quality of our environment and all the life around us depend on clean air and water, a safe food supply, and protection against toxic waste and chemicals. EPA's Strategic Plan describes how we intend to achieve these results. It presents our ten goals and numerous strategic objectives, each one building on more than three decades of steady improvement in environmental and human health protection.[1]

Innovation: Critical to EPA's Success

"Innovation" is a theme which permeates EPA's work. Recognizing the changing nature of the environmental problems that we face, EPA has embraced innovation to advance environmental management. When EPA was created in 1970, many of our nation's environmental problems were starkly obvious and their solutions equally clear. By implementing technical solutions and regulatory mandates—often in very prescriptive terms—and focusing on "end-of-the-pipe" pollution from large industrial and municipal sources, EPA was able to oversee rapid and impressive improvements in environmental conditions.

Over the last three decades, however, the easy victories have been won. EPA increasingly finds diminishing returns in its traditional approaches to regulating large and obvious sources of pollution. Instead, achieving the ambitious goals that we have set for ourselves will require new perspectives, new approaches, and new partnerships in our core environmental programs. As we enter a new century, we are gaining greater appreciation of people's relationship with the environment and how our actions can affect the ecosystems in which we live, work, and play. Today, it is no longer enough to focus only on controlling pollution. We face new problems, such as the loss of biological diversity and global climate change, which are much more difficult to assess and manage. Genetic engineering is raising important questions about the possibilities and ethics of science; global trade and e-commerce are revolutionizing the ways we live and work; and our population is living longer, healthier lives that can place additional stresses on our environment and resources. EPA is addressing many of these issues. To ensure our continued progress, however, we must invest in developing the science, strategies, and tools needed to understand and successfully address these new challenges.

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[1]This Strategic Plan is an update to EPA's 1997 Strategic Plan, as required by the Government Performance and Results Act (GPRA) of 1993. Building on an Administration commitment to reinvent government, as well as GPRA, the 1997 Strategic Plan described EPA's mission, established ten broad goals, and established a new framework for the Agency's planning and resource allocation decisions. Collectively, these efforts were intended to provide better environmental protection at less cost by strengthening the current regulatory system and designing and testing new tools and approaches.

Innovations within EPA's Core Programs

At EPA, we have been promoting innovation to enhance existing programs and develop new approaches with the potential for achieving better and more cost-effective environmental results. We have streamlined regulatory processes, cut paperwork, built more flexibility into regulations, and established new voluntary programs and partnerships.

Market-based Solutions

One way in which EPA is making improvements is by offering environmental managers more flexibility, for example through a market-based approach called "cap and trade." In contrast to more traditional, regulatory approaches to controlling pollution, the flexible cap-and-trade program relies on economic incentives to achieve desired environmental goals. EPA's Acid Rain Program uses this market-based approach by placing a mandatory nationwide ceiling, or cap, on sulfur dioxide (SO_2) emissions from electric utilities, then allocating the utilities "allowances" for their emissions. At the end of the year, utilities must hold one allowance for each ton of SO_2 they emitted; extra allowances may be banked for future use or sold to other utility companies. In addition to offering an economic incentive to reduce emissions, this kind of emissions trading allows utilities the flexibility to decide how they will achieve the necessary emission reductions.

The innovative approach taken by the Acid Rain Program has been very successful. A 1998 Resources for the Future report estimated that the costs of complying with the Acid Rain Program will be less than $1 billion by 2010. In contrast, the reductions in SO_2 will provide $12 to $40 billion in health benefits and $3 to 4 billion in improved visibility. Real-life experiences with the program have revealed greater cost savings than initially expected, placing expected benefits to up to 40 times the cost of the program. Based on the success of the innovative Acid Rain Program, EPA will support additional emissions cap-and-trade programs, such as the multi-state NO_X Budget and Trading Programs, to solve other air quality problems. Trading is also being expanded to address other environmental problems, such as water pollution and loss of wetlands.

Superfund

EPA's Superfund program, established to clean up the nation's most toxic waste sites, demonstrates the success of several new and innovative approaches. Through a series of administrative reforms, EPA has improved virtually every aspect of the Superfund program–from assessing risk and ensuring public involvement in cleanup strategies, to recovering costs from responsible parties. As a result, the average time and costs for cleanup have fallen by 20 percent. More than three times as many Superfund cleanups were completed between 1993 and 1999 as were completed in the previous 12 years combined. Further, a recent analysis of Superfund actions between 1993 and 1997 shows that our new emphasis on selecting more efficient cleanup technologies has resulted in an estimated 70 percent cost savings per site: the use of innovative rather than conventional remediation technologies saved a total of $2.1 billion. We will build on these successes as we continue to clean up polluted Superfund sites and return them to productive use.

Project XL

EPA's interest in providing more flexibility and finding new approaches has led to another important environmental reform effort—Project XL (eXcellence and Leadership). Launched in 1995, this program challenges EPA and our partners outside the Agency to think and operate differently. It is enabling us to break new ground by trying approaches to environmental protection that have never been tried before, with the expectation that lessons learned from these targeted experiments will be incorporated into broader programs.

For example, in Atlanta, EPA has worked with a developer, the State of Georgia, and other stakeholders on an innovative strategy to promote smart growth. A proposal was made to convert a former steel mill into a new residential and commercial business property. At first, it seemed the project would not be feasible. A bridge was needed to connect the site to nearby Interstates and the local commuter rail system, but the metropolitan area's air quality problems meant it did not qualify for federal highway funding. Once the proposal was evaluated more carefully, it became clear that developing the site was the soundest environmental option. Developing the property preserves green space that would be lost if the project was moved to another undeveloped location, and it helps address the region's air quality problems by reducing driving for residents, shoppers, and workers. Based on the flexibility provided through Project XL, the Atlantic Steel proposal gained approval. This example demonstrates what smart growth is all about, and it shows how flexibility can lead to better environmental results.

Compliance

Innovation has also led to new approaches for improving compliance. EPA has established an audit policy that provides incentives for companies to find and address their environmental performance problems. EPA waives or significantly reduces penalties for companies that systematically evaluate their environmental management and take action to disclose and correct any violations that are found. This is an extraordinarily successful component of EPA's enforcement and compliance program. To date, almost 700 companies have disclosed violations at over 2,700 facilities. The audit policy is highly cost effective as it not only helps to achieve corporate-wide and individual settlements, but also serves as the basis for sector-wide audits. For example, incentives resulting from the policy enabled EPA to eliminate 700 tons of air pollutants annually by a recent settlement involving a major commercial airline. In exchange, EPA cut total penalties by more than 90%. As a result of this action, other airlines also disclosed and addressed violations.

Innovations in compliance assistance are also promoting improved compliance. EPA is employing new tools and approaches, including shifting the Agency's role from that of providing tools directly to that of "wholesaler"–developing tools, establishing a compliance assistance clearinghouse, and fostering a compliance assistance network. While EPA will maintain a strong presence in enforcement, we will also bring a mix of innovative compliance tools and solutions to bear on environmental problems.

Innovation Through Partnerships

As we strive to improve our programs, we look to others outside of EPA for new ideas and partnership opportunities. Thousands of individuals and organizations in private industry, government, trade associations, nonprofit groups, universities, and research institutions can contribute unique expertise and bring new perspectives to environmental protection. EPA is reaching out to build strategic alliances with outside parties, knowing that these relationships will provide new insights, help us leverage resources, and promote continued progress.

In some cases, partnerships are enabling EPA to accomplish goals without regulatory action. A recent example is the approach being used to gather critical information about some of the nation's most toxic and widely used chemicals. Rather than issuing a regulation, EPA worked with the chemical industry on a voluntary information collection initiative. The industry agreed to provide the information that already exists and to conduct testing to yield data that are missing. As a result, important data for protecting human health and the environment will be available much more quickly.

Several of EPA's partnership programs focus on reducing greenhouse gas emissions and are based on voluntary action. The Energy Star program, a voluntary partnership between EPA, the Department of Energy (DOE), product manufacturers, local utilities, and retailers, promotes products that use less energy, saving consumers money, and encourages a whole-building approach to energy efficiency. The Climate Wise program, sponsored by EPA with technical support from DOE, can benefit companies of all sizes by improving the energy efficiency of production processes while saving money and boosting productivity. Collectively, these programs are helping to reduce greenhouse gas emissions by 35 million metric tons (in carbon equivalents) a year. They will continue to be critical components of EPA's partnership efforts.

Innovations in Science

By providing us with the knowledge and technologies to detect, abate, and avoid environmental problems, science is the foundation that supports all of EPA's work. Our human activities can impact natural processes positively or negatively on both a local and global basis. One of our challenges, therefore, is to ensure that we sufficiently understand and address the likely effects of our activities before they result in harm to human health or the environment. EPA is developing the knowledge we need to advance environmental and human health protection, from assessing risks and developing regulatory standards to investigating new technologies that make it possible to prevent or significantly reduce pollution.

One of the chief objectives of EPA's science program is to help promote a more integrated approach to environmental management. In the natural environment, air, land, and water are not separate; they interact in complex, subtle ways not always immediately apparent. Nature does not recognize the artificial distinctions created by legislation or regulatory programs that focus on a single medium or pollutant, and EPA science must reflect these very real and powerful dynamics. For example, in one such holistic approach, EPA is integrating data collected by

satellites with data collected in our streams, soils, marshlands, and beaches to help us gain a more complete and accurate understanding of environmental conditions in the mid-Atlantic and western states. To anticipate potential future environmental problems, EPA is also using these data to model possible associations between current conditions and socio-economic trends.

To help base such efforts on sound science, EPA has adopted the following set of principles: the development and use of an inventory of EPA's science activities; effective cross-Agency planning for scientific investigations; and coordination and collaboration to support, enhance, and implement sound science practices. By fostering a reasoned and objective basis for our policies, these principles enhance EPA's ability to achieve our strategic goals and objectives.

Innovations in Information and Public Involvement

EPA is also moving to take advantage of the opportunities created by new information technology. We are committed to encouraging environmental action and stewardship more broadly throughout society and are working to make information widely available so others can understand and help solve environmental problems. Our efforts involve businesses and industry, but they also include citizens and other organizations that have often been on the fringes of environmental protection efforts in the past. We know that if more people and industries are given information in forms they can readily use and understand, they will be in a better position to act constructively. Increasingly, we will be relying on action by individuals at the local level for environmental and human health protection efforts to succeed.

Today, new information technologies are making it possible to gather, analyze, and present data in ways that were never before possible. Expanding public access to this information is a top priority, and we are using all of the tools at our disposal to do so. As a result, citizens now have access to much more environmental information than they did a decade ago. EPA is requiring more reporting on industrial toxic emissions, on the quality of drinking water supplied to consumers, and on the environmental performance levels of companies and individual business sectors. To maximize accessibility, we are putting this and other information on the Internet to reach a rapidly growing audience. One such Internet site, the Envirofacts Data Warehouse, provides the public direct access to a wealth of information about environmental activities that may affect air, water, and land anywhere in the United States. A program called EnviroMapper enables users to view and query information about EPA-regulated facilities which is stored in the Envirofacts Warehouse. EnviroMapper can also be used to view environmental statistics, profiles and trends as well as environmental information for certain US metropolitan areas, watersheds, and Superfund sites. Both Envirofacts and EnviroMapper provide the type of Internet capabilities that enhance the public's ability to make informed environmental decisions for their communities.

Implications for the Future

The experiments occurring in environmental management are helping to advance state-of-the-art practices and prove the value of new approaches—promising more progress in the future. Our

recent innovations, together with our experience in managing environmental programs over the past 30 years, provide us with insight into how our environmental protection system can function more efficiently and effectively. First, we believe environmental management must be more performance-based—rewarding and encouraging environmental achievement and voluntary actions. Second, it must become more flexible—allowing alternatives to the traditional regulatory framework to reach desired ends. And third, it must be more informative and inclusive—providing access to information and opportunities for citizens and other interested parties to use their increased knowledge to take action and influence decision making in a meaningful way.

Looking ahead, EPA sees exciting possibilities and great potential for improving environmental and human health protection. The Information Age has created a better-informed public with a greater sense of its place in the global community. Citizens are showing more interest and leadership in addressing environmental issues in their communities, and corporations are becoming cleaner, less wasteful, and more productive in order to stay competitive in today's global marketplace.

This Strategic Plan focuses EPA on preparing for the future and taking advantage of the many opportunities that exist for improving environmental results. It shows how we will build on the progress made in the past so that more Americans live in areas where health-based standards for air and drinking water are being met and food is safe. It builds on our continuing work to reduce and prevent pollution, improve our clean-up programs, and redevelop brownfields sites. It commits us to work with other nations to reduce global environmental risks. It details how we will use the Internet and other new technologies to ensure that environmental information flows quickly and efficiently to support environmental actions. It presents the science we will support to reduce the public's risk to environmental hazards such as pesticides and chemicals that threaten reproduction and other biological functions. It describes how we intend to expand incentives that can encourage companies to continuously improve their environmental performance. And it commits us to the highest standards of management, ensuring that we use taxpayers' money most effectively to carry out our environmental stewardship responsibilities.

These goals and objectives outline EPA's major priorities and show what we will do to build on the nation's legacy of progress in environmental management. In Chapter 2, we present our mission, our ten goals, and our strategies for achieving our objectives. Chapter 3 presents six high-priority programs that cut across our strategic goals and represent EPA's commitment to innovation. Finally, Chapter 4 describes how we intend to measure and assess our progress and further our commitment to results-based environmental management.

The efforts that we have outlined in this Plan will be guided by a commitment to creating the strongest, most cost-effective system of environmental and human health protection possible. And in carrying out these efforts, we will continue to encourage and cultivate the process of innovation that now influences so much of our work.

Chapter 2: Achieving Our Goals

EPA's ten, long-range goals establish the focus for our work in the years ahead. We will plan our programs and activities, set our priorities, and allocate our resources—human, capital, and technological—around these goals. We will measure our performance to make sure that we are making progress towards our goals, and as necessary, we will alter our approaches or modify our strategies in order to achieve real, environmental results.

This chapter describes EPA's ten strategic goals. For each, we present a list of longer-term objectives we have established to attain the goal and include specific accomplishments we intend to achieve over the next several years. We also discuss how we intend to proceed—the means and strategies we will employ to accomplish our goals—and how these specific accomplishments will move us closer to our long-range goals and objectives. Finally, we discuss the external factors that may bear on our ability to realize our plans and achieve our objectives.

Goal 1: Clean Air

The air in every American community will be safe and healthy to breathe. In particular, children, the elderly, and people with respiratory ailments will be protected from health risks of breathing polluted air. Reducing air pollution will also protect the environment, resulting in many benefits, such as restoring life in damaged ecosystems and reducing health risks to those whose subsistence depends directly on those ecosystems.

Importance of This Goal

Despite great progress in achieving cleaner, healthier air, air pollution continues to be a widespread human health and environmental problem in the United States. Air pollution contributes to illnesses such as cancer, detrimentally affects respiratory and reproductive systems, and can cause mental impairment. Further, air pollution reduces visibility, damages crops, forests, and buildings, acidifies lakes and streams, and poses additional risks to Native Americans who rely on plants, fish, and game for subsistence.

Much work lies ahead. Although air quality has been improving overall, there are still urban and rural areas where the air does not meet national air quality standards, areas with worsening air quality, and areas, such as in Indian country, where air quality is not adequately monitored. Millions of tons of toxic air pollutants are still being released into the air, and as of December 1999, about 103 million people in 119 areas were still breathing air that did not meet one or more of the health-based national standards established by EPA. Some progress has been achieved in reducing the pollutants that cause acid rain; however, emissions of sulfur dioxide and nitrogen oxides remain at levels that can damage lakes and forests.

Objectives

- Reduce the risk to human health and the environment by protecting and improving air quality so that air throughout the country meets national clean air standards by 2005 for carbon monoxide, sulfur dioxide, nitrogen dioxide, and lead; by 2012 for ozone; and by 2018 for particulate matter (PM). To accomplish this in Indian country, the tribes and EPA will, by 2005, have developed the infrastructure and skills to assess, understand, and control air quality and protect Native Americans from unacceptable risks to their health, environment, and cultural uses of natural resources.

- By 2020, eliminate unacceptable risks of cancer and other significant health problems from air toxic emissions for at least 95 percent of the population, with particular attention to children and other sensitive subpopulations, and substantially reduce or eliminate adverse effects on our natural environment. By 2010, the tribes and EPA will have the information and tools to characterize and assess trends in air toxics in Indian country.

- By 2005, reduce ambient nitrates and total nitrogen deposition to 1990 levels. By 2010, reduce ambient sulfates and total sulfur deposition by up to 30 percent from 1990 levels.

Results We Intend to Achieve

Over the next several years, EPA and state, tribal, and local governments will make substantial progress in reducing pollution and improving air quality. We expect to achieve the following specific accomplishments:

- By 2012, air throughout the country meets the national standards for ozone.

- By 2018, air throughout the country meets the national standards for PM.

- By 2018, visibility will be improving in 80 percent of our 156 national parks and wilderness areas from 1999 levels, and none of them will have deteriorating visibility.

- By 2005, air throughout the country meets the national standards for carbon monoxide.

- By 2005, air throughout the country meets the national standards for sulfur dioxide.

- By 2005, air throughout the country meets the national standards for nitrogen dioxide.

- By 2005, air throughout the country meets the national standards for lead.

- Through 2018, provide methods, models, data and assessment criteria on the health risks associated with PM and other National Ambient Air Quality Standards (NAAQS) alone and in combination, focusing on the exposures, mechanisms of injury, and components that affect human health. Provide NAAQS implementation tools for tropospheric (near

ground level) ozone and PM that quantify emissions and model air quality as well as develop the science to support control strategies for attaining clean air standards.

- Through 2020, develop and improve (1) air quality models and source receptor tools to identify the sources and source contributions of hazardous air pollutants; (2) cost-effective pollution prevention and other control options to address indoor and urban pollutant sources that significantly contribute to risk; and (3) scientific information and tools for quantitative assessment of nationwide, urban, and residual air toxic risks to susceptible populations from hazardous air pollutants, considering both indoor and ambient air environments.

- Through 2020, continue to use and improve air toxics information and tools (i.e., monitoring networks, reporting requirements, inventories, and assessment approaches) to support the quantitative evaluation, characterization, and tracking of risk-based indicators. Develop the technical tools needed to fully implement strategies and programs to reduce air toxic exposure risks, including risks to children and other sensitive subpopulations.

- By 2020, (1) reduce cancer incidence in urban areas by 75 percent (from 1990 levels) from stationary source emissions through a combination of federal, state, local, and tribal regulatory programs and voluntary initiatives; (2) reduce cancer incidence from mobile source emissions by 65 percent through implementation of motor vehicle and fuels programs; (3) substantially reduce non-cancer risk from all sources; and (4) address disproportionate impacts on populations and areas, including for example, densely populated areas, children, and people who are highly exposed to water and food affected by air toxics.

- By 2005, annual emissions of nitrogen oxides from electric power generation sources will be reduced by 2 million tons from projected levels, of which 1 million tons will occur during the summer to facilitate attainment of the ozone standard. By 2010, annual sulfur dioxide emissions from electric power generation sources will be reduced by 8.5 million tons below 1980 levels.

Means and Strategies

Federal, state, tribal, and local environmental programs, as well as the regulated community, must all participate and cooperate to achieve clean air. We must develop a sound, scientific understanding of the air pollution mixture and its potential effects on children, the elderly, and people with respiratory ailments. Federal assistance and leadership will help promote cooperative state, tribal, local, regional, national, and international air programs and ensure compliance with national standards.

In full partnership with our state, tribal, and local co-regulators and with industry, small businesses, and other federal agencies, we will develop a range of approaches to address air quality problems. To attain national air quality standards, we will collaborate on new strategies, based on sound science, which include regional and geographic approaches and enforcement and compliance assistance programs. Based on the success of the innovative, market-based approach pioneered by the Acid Rain Program, for example, EPA will support other emissions cap-and-trade programs, such as the NOx Allowance and Emissions Tracking Systems for the NOx Budget Program, that provide flexible, market-based approaches to solving air quality problems. EPA will offer grants and technical assistance to aid states and tribes in developing plans and strategies that meet their needs.

EPA will continue to develop and issue national, technology-based standards to reduce the quantity of toxic air pollutants emitted from industrial and manufacturing processes. We will assess risk remaining after standards are implemented, and we will research cost-effective risk management approaches and evaluate their effectiveness. We will also continue to work with states to improve on-time delivery of permits and reduce overall permitting costs.

EPA will develop federal control measures for mobile, stationary, and other sources that are best regulated at the federal level, such as on- and off-road engines, consumer products, maintenance coatings, and facilities that emit radiation. We will reduce mobile source emissions by focusing on vehicle-based solutions, developing cleaner engine technologies and cleaner burning fuels, and developing flexible motor vehicle inspection and maintenance programs. We will continue to promote and support comprehensive state and local transportation planning and will work with other federal agencies, local governments, and citizens to develop more flexible, efficient transportation systems.

In Indian country, EPA will work with tribes on a government-to-government basis to develop the infrastructure and skills tribes need to assess, understand, and control air quality on their lands. In consultation with our tribal partners, EPA will develop the necessary federal regulatory authorities and support the development of tribal programs to protect tribal air resources. The 1998 Tribal Authority Rule authorizes tribes to administer air programs in Indian country, and over the next few years, EPA will work with tribes to fashion and manage their own air programs, consistent with their traditions and culture. Where tribes do not develop their own programs, EPA will implement air quality programs directly. We will also support tribal air programs by providing technical support, assistance with data development, and training and outreach. EPA will help tribes participate in national policy and operations discussions and in regional planning and coordination activities.

EPA's strategy for implementing new, more protective air quality standards has been modified as a result of ongoing litigation. In May 1999, a U.S. Court of Appeals issued an opinion that called into question EPA's ability to adopt and enforce new standards for ozone and PM established in 1997. In May 2000, the Supreme Court agreed to hear a Department of Justice argument to overturn this decision. While these legal issues are being resolved, EPA's strategy is to maximize the public health protection available under the one-hour ozone standard and pre-

1997 PM standard and move forward to build the infrastructure that will be needed to implement the new standards when the time comes. We will also continue to research, upgrade, and improve air monitoring networks to obtain better data and improve our understanding of how PM, toxic air pollutants in urban areas, ozone in rural areas, and acid deposition impact the health of Americans and the environment. In addition, we will focus on air-water linkages such as the deposition of airborne pollutants in water.

EPA will also address regional haze, which results when pollution that occurs in one state affects visibility downwind in other areas. To foster more effective regional solutions, EPA will continue to encourage multi-state efforts to plan and develop strategies to address regional haze. All 50 states will participate in planning, analysis, and emission control, and EPA will work with tribes to ensure their participation in these efforts.

Under the national air toxics program, EPA issued a July 1999 strategy to reduce further emissions of toxic air pollutants. The strategy comprises four components: federal and local regulations to control smaller commercial and industrial operations that collectively can emit large quantities of toxic air pollutants; national and local initiatives to address specific toxic pollutants (e.g., mercury) and risks in a community; assessments (including expanded monitoring and modeling) to identify areas of concern, set priorities, and track progress; and education and outreach to inform stakeholders and invite input into program design.

Relating Annual Performance Goals to Strategic Objectives

EPA's long-term performance under this goal will be measured according to progress in achieving objectives that the clean air program has established through 2020. These objectives reflect our efforts to ensure that EPA reduces the risk to human health and the environment by protecting and improving air quality to meet national clean air quality standards; eliminating unacceptable risks of cancer and other significant health problems from air toxic emissions and reducing or eliminating adverse effects on our natural environment; and reducing ambient sulfates and total sulfur deposition.

EPA's progress in achieving each objective will be supported by annual performance goals that will be fully developed in our Annual Plans. Annual performance goals will focus on achieving incremental environmental improvements and on accomplishing program activities. Generally, activity- or output-based goals will be established for the work required to develop and implement programs, and goals that reflect environmental improvements will be established for more mature programs. In newer program areas, program infrastructures and strategies have to be developed and implemented before reductions in targeted air pollutants can occur. Several more years may pass before newer programs have a measurable effect on the environment.

External Factors

EPA, states, and tribes share responsibility for protecting and improving the nation's air quality, and EPA relies upon states to implement the programs and carry out the day-to-day operations that actually reduce air pollution. EPA also recognizes tribes as the primary authority for implementing air quality protection programs in Indian country. EPA is primarily responsible for developing national standards, regulations, and programs and for providing technical assistance and training.

Weather conditions and meteorological patterns have very important effects on air quality. For example, weather and winds can affect how quickly and effectively air pollutants are diluted by mixing with cleaner air. High temperatures and bright sunlight can increase the formation of ozone. Weather and wind can bring air pollution to one area from another, while conditions of little or no wind can cause air pollutants to remain in an area and build up to unhealthy levels. Warm air can move in over cold ground and create an "inversion," which traps pollutants close to the surface and prevents them from being dispersed.

Lawsuits and court action may also impact EPA's ability to achieve objectives, requiring the Agency to adjust schedules and delay accomplishment of certain goals and objectives.

Finally, economic conditions in the United States or the world economy can affect achievement of the clean air objectives. A strong economy can result in increased emissions of air pollutants due to increased industrial production.

Goal 2: Clean and Safe Water

All Americans will have drinking water that is clean and safe to drink. Effective protection of America's rivers, lakes, wetlands, aquifers, and coastal and ocean waters will sustain fish, plants, and wildlife, as well as recreational, subsistence, and economic activities. Watersheds and their aquatic ecosystems will be restored and protected to improve public health, enhance water quality, reduce flooding, and provide habitat for wildlife.

Importance of This Goal

We need safe, clean water for drinking, recreation, fishing, maintaining ecosystem integrity, and supporting agriculture, industry, and other commercial activities. Our nation's health, economy, and quality of life depend on reliable sources of clean water. Americans enjoy one of the safest drinking water supplies in the world, yet prevention and treatment measures must be continually assessed to maintain a maximum level of public health protection. In 1999, more than 25 million people served by community drinking water systems received water that violated health standards at least once during the year. One cause for concern is microbial pathogens, which not only threaten drinking water, but also present a significant and growing risk to people who swim, participate in other water-related recreation, or eat contaminated fish.

Polluted water and degraded aquatic ecosystems threaten the viability of all living things and the vigor of the nation's economy. As of 1998, about 40 percent of the assessed waters in the United States were degraded to the point that they did not support their designated use. Furthermore, in the continental United States, we have lost more than 50 percent of our wetlands—more than 1 million acres—since the time of European settlement. To ensure our health, economy, and quality of life, we must continue to preserve and protect America's rivers, lakes, wetlands, aquifers, and coastal and ocean waters.

Objectives

- By 2005, protect human health so that 95 percent of the population served by community water systems will receive water that meets drinking water standards, consumption of contaminated fish and shellfish will be reduced, and exposure to microbial and other forms of contamination in waters used for recreation will be reduced.

- By 2005, increase by 175 the number of watersheds where 80 percent or more of assessed waters meet water quality standards. The 1998 baseline is 501 watersheds.

- By 2005, reduce pollutant loadings from key point and nonpoint sources by at least 11 percent from 1992 levels. Air deposition of key pollutants will be reduced to 1990 levels.

Results We Intend to Achieve

EPA will continue to work with its many partners to implement the Safe Drinking Water Act (SDWA) Amendments. We will develop and implement rules for contaminants of greatest risk; provide states, tribes, and water system managers with funding and tools; establish strong prevention barriers by connecting source water protection and regulatory programs; and ensure that the public is well informed.

To restore and protect the nation's waters and aquatic ecosystems, we will apply a watershed approach. Watersheds are nature's boundaries for water resources. When rain falls or snow melts, water flows downhill through rivulets, brooks, wetlands, drains, and ditches into streams, rivers, lakes, and eventually to the ocean. Water may also percolate through the soil to become groundwater. Taking a watershed approach that considers this whole system is the key to setting priorities and taking action to clean up rivers, lakes, and coastal waters. We will strengthen water quality standards; foster natural resource stewardship for crop land, pasture, rangeland, and forests; and inform citizens and officials about the health of watersheds, beaches, and fish. We expect to achieve the following specific accomplishments:

- By 2005, the population served by community water systems providing drinking water that meets all 1994 health-based standards will increase to 95 percent from a baseline of 83 percent in 1994. Ninety-five percent compliance will be achieved for any new standards within five years after the effective date of each rule.

- By 2005, standards that establish protective levels for an additional ten high-risk contaminants (e.g., disinfection byproducts, arsenic, radon) will be issued and will provide increased protection to the general population as well as sensitive subpopulations such as children, the elderly, and the immuno-compromised.

- By 2005, demonstrate the effectiveness of both voluntary and regulatory activities to protect sources of drinking water by (1) ensuring that 50 percent of the population served by community water systems will receive their water from systems with source water protection programs in place and (2) managing (a) identified, high-risk Class V wells in 100 percent of priority protection areas (e.g., wellhead, source water, sole source aquifer, etc.) and (b) all Class I, II, and III injection wells.

- By 2005, five percent of the waters with fish advisories will demonstrate a decline in fish tissue contamination, consumption of contaminated fish and shellfish will be reduced, and the percentage of waters attaining the designated uses protecting the consumption of fish and shellfish will increase.

- By 2005, exposure to microbial and other forms of contamination in waters used for recreation will be reduced, and the percentage of waters attaining the designated recreational uses will increase.

- Through 2005, provide a stronger scientific basis for future implementation of the SDWA.

- By 2005, 5,000 additional miles of water will attain water quality standards and specific interim milestones will be achieved in 50,000 impaired river miles, lake, and estuary square miles.

- By 2005, and in each year thereafter, the work of federal, state, tribal, and local agencies; the private sector; hunting and fishing organizations; and citizen groups will result in a net increase of 100,000 acres of wetlands.

- Through 2005, provide the means to identify, assess, and manage aquatic stressors, including contaminated sediments.

- By 2005, using both pollution control and prevention approaches, reduce at least 3 billion pounds of point source loadings from key sources, including a combined 11 percent reduction from industrial sources, publicly owned treatment works (POTWs), and combined sewer overflows (CSOs).

- By 2005, through the work of federal, state, tribal, and local agencies and the private sector, nonpoint source loadings (especially sediment and nutrient loads) will be reduced, including a 20 percent reduction from 1992 levels of erosion from crop land (i.e., reduction of 235 million tons of soil eroded).

- Through 2005, deliver decision support tools and alternative, cost-effective wet weather flow control technologies for use by local decision makers in community-based watershed management.

- By 2005, improve water quality by reducing releases of targeted persistent toxic pollutants that contribute to air deposition by 50 percent compared to 1990 levels, as measured by the National Toxics Inventory. Also by 2005, reduce ambient nitrates and total nitrogen deposition to 1990 levels, as measured by the National Atmospheric Deposition Network and the Clean Air Status and Trends Network.

Means and Strategies

EPA has organized its water protection strategy around the basic premise that clean and safe water is the product of a healthy watershed. The Agency's watershed approach takes a comprehensive view of our aquatic resources and their surroundings. Focusing on the whole watershed helps to strike the best balance in protecting these resources and engages a wide variety of our partners and stakeholders in solving the wide range of water protection problems.

Under the watershed approach, EPA will conduct both voluntary and regulatory activities to protect the nations's drinking water. We will work with our state, tribal, and local government partners to connect such traditional activities as source water protection, capacity development, and operator certification with regulatory actions for drinking water. Through the extensive stakeholder process and new scientific and analytic standards set forth in the 1996 SDWA Amendments, EPA will continue to set drinking water safety standards and, as the law requires, revise existing drinking water regulations on a six-year cycle. Through the right-to-know provisions in the 1996 SDWA Amendments, all customers served by community water systems now have access to consumer confidence reports that contain information about a system's source water, the quality of the drinking water, and any special circumstances that may affect them or their families. The Agency will continue to post these consumer confidence reports on its Internet Web site.

States and tribes have primary responsibility for protecting their constituents from the health risks associated with contaminated noncommercial fish, wildlife, and recreational waters. EPA will continue to support states and tribes by developing sound scientific methods, preparing technical guidance and communications strategies, and providing access to national information. For example, to address fish contamination, EPA will help states and tribes develop and implement fish advisory programs by providing the scientific information and tools needed to assess local contamination problems and inform the public. In addition, EPA will conduct a major survey of contamination in fish tissue that will provide information on the nature and extent of specific pollutants across the United States.

Information on the extent and nature of contaminated recreational water is not consistently collected across the country, nor are all recreational waters monitored. EPA's long-term

strategies are designed to support state and tribal efforts to correct this problem and ensure that all Americans are protected against potential risks.

To ensure that our rivers, streams, lakes, and coastlines reliably support healthy aquatic communities, EPA will encourage and assist comprehensive watershed programs for all states and tribes. EPA will continue targeted efforts (such as the National Estuary Program, Chesapeake Bay Program, Gulf of Mexico Program, South Florida/Everglades Program, Northwest Forest Plan, and Watershed Restoration Action Strategies) to assist states and stakeholders in developing and implementing watershed management plans in priority areas of national significance.

EPA is relying on the establishment of Total Maximum Daily Loads (TMDLs) for impaired bodies of water to address pollutant loading threats. TMDLs will bring impaired waters into attainment for designated uses under requirements of the Clean Water Act. TMDLs enable multiple approaches to protection, including point-source discharge permits, non-point source management, pollutant trading schemes, and other innovative approaches. For coastal ports, EPA will ensure that comprehensive dredged material management plans are put in place to maintain, restore, and improve the health of coastal waters.

EPA will work with its state and tribal partners to develop and improve their wetlands protection programs. We will support incorporation of wetlands into watershed management approaches by developing assessment methods, providing technical assistance, and establishing linkages to regulatory decision-making. EPA will support research on integrating the functional value of wetlands into all watershed management work, including the development of indicators and water quality standards criteria. EPA will provide guidance and assistance for monitoring programs to improve the information base on wetlands.

EPA and its partners have made significant progress in reducing pollutant discharges from traditional point sources (industries and municipal wastewater treatment plants); however, discharges from "wet weather" sources, such as combined sewer overflows, storm water, and sanitary sewer overflows remain the greatest challenge to the point source program as a whole. The Agency will continue to streamline and simplify effluent guidelines and the National Pollutant Discharge Elimination System (NPDES) permit program and to manage the Clean Water State Revolving Fund program, the tribal grant program, and other funding mechanisms to provide clean and safe water.

Finally, EPA will work with states and tribes to characterize risks, set priorities, and implement a mix of voluntary and regulatory approaches through state non-point source management programs. The Agency will continue to manage the CWSRF program and other funding mechanisms to provide support for non-point source management and estuary protection programs. EPA will work with other federal agencies (including USDA and NOAA) to enhance watershed and non-point source management for the protection of water quality. These efforts will involve stakeholders with interests in a given watershed to determine the approaches that best suit their water quality needs. EPA will assess options to strengthen controls on sources of

nitrogen deposition, mercury, and other toxins and will recommend voluntary and regulatory actions.

Relating Annual Performance Goals to Strategic Objectives

To achieve our goal of clean and safe water, EPA has established objectives that identify key programs and areas of emphasis through 2005. These objectives reflect our efforts to ensure that community water systems will meet national safe drinking water standards, provide increased protection for the nation's watersheds, and reduce pollutant loadings from point and non-point sources.

We will measure our progress towards these objectives through a set of annual performance goals and measures. EPA is making every effort to incorporate measures of actual water quality conditions and associated human health and ecological quality into its management of the Clean Water Act and the Safe Drinking Water Act programs. Our annual performance goals and measures direct a variety of program activities, offering a strategic "road map" for achieving the long-term results envisioned under this goal. Our annual goals will focus on continuing research and improving scientific understanding to better define the conditions of healthy aquatic ecosystems and safe drinking water; improving the accuracy and scope of watershed assessments, integrating physical and biological indicators with long-standing chemical assessments to improve the measurement of aquatic health, and developing new criteria (for bacteria, nutrients, and microbiological pathogens) that go beyond the traditional, chemical-specific tools.

External Factors

The natural environment, the behavior of others, court-established schedules, and the economy all affect EPA's ability to meet this goal. Natural processes (including weather, species population fluctuations, and complex ecological processes) can dramatically improve or impair our ability to make progress toward clean and safe water. Because EPA depends on the work of states, tribes, and others to achieve this goal, changes in their priorities or resources can also impact our accomplishments.

The complexity of upcoming drinking water regulations and the process of gaining consensus with stakeholders pose a continuing challenge in implementing the 1996 SDWA Amendments. Furthermore, EPA depends on our state partners' capacity to adopt health-based and other drinking water regulations and willingness to make changes that will enable comprehensive assessment of the nation's waters. Since states have primary enforcement authority for drinking water regulations, they must have not only staff and resources to work with public water systems to ensure compliance, but also the new tools needed to implement these new rules. States and tribes may need to enact statutory or regulatory changes to adopt the scientific, technical, and programmatic framework that supports biologically based aquatic life uses into their water quality standards programs. Further, most of the monitoring data upon which EPA depends for analyses of trends and baselines are gathered by governmental and private/volunteer partners; a change in the methodology for gathering this data or in data quality, regardless of the actual

change in water quality over time, could skew EPA's assessment of that change.

Goal 3: Safe Food

The foods Americans eat will be free from unsafe pesticide residues. Particular attention will be given to protecting subpopulations that may be more susceptible to adverse effects of pesticides or have higher dietary exposures to pesticide residues. These include children and people whose diets include large amounts of non-commercial foods.

Importance of This Goal

Americans enjoy one of the safest, most abundant food supplies in the world. The availability and safe use of pesticides during food production, processing, storage, and transportation help make this possible. However, pesticide application, especially when pesticides are misused, sometimes results in residues which can potentially adversely affect human health. In addition, certain groups, such as infants and children, may be more sensitive to the effects of pesticides. Therefore, ensuring that food remains safe for consumption for everyone requires continued diligence.

Objectives

- By 2006, reduce public health risk from pesticide residues in food from pre-Food Quality Protection Act (FQPA) levels (pre-1996).

- By 2008, use on food of current pesticides that do not meet the new statutory standard of "reasonable certainty of no harm" will be eliminated.

Results We Intend to Achieve

EPA will dramatically reduce the risk posed to people by pesticide residues on food through a number of activities specifically designed to remove high risk pesticides and ensure that all pesticides that remain on the market meet the stringent, health-based safety standard mandated by FQPA. Before a pesticide can be used legally in the United States, FQPA requires EPA to determine that its use will result in "reasonable certainty of no harm to human health" and "no unreasonable adverse effects" on the environment. In carrying out FQPA over the next several years, EPA will continue to base regulatory decisions on sound science, ensure that decisions and policies are transparent to our stakeholders and partners; facilitate a reasonable transition away from the higher risk pesticides for the agricultural community; and pursue effective consultation with stakeholders and partners. With these efforts, we expect to achieve the following specific accomplishments:

- By 2006, at least seven percent of agricultural pesticide acre treatments will use reduced risk pesticides.

- By 2006, residues of carcinogenic and cholinesterase inhibiting neurotoxic pesticides on the foods most frequently eaten by children will be reduced by 50 percent from 1995 levels.

- By 2006, all registration activities (including registration of new conventional chemicals, new uses, me-toos, antimicrobials, etc.) will meet the applicable standards mandated by law.

- By 2008, active ingredient and product reregistration will be completed for all pesticides subject to reregistration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)-88.

- By 2006, 100 percent of the reassessments of pesticide residue tolerances mandated by FQPA will be completed.

- By 2006, Registration Review will be fully established and operational.

- Through 2008, provide research results to support the new FQPA regulatory standard of "reasonable certainty of no harm" for pesticides used on food.

Means and Strategies

EPA's priorities in ensuring safe food are to address those agricultural pesticides posing the greatest health risks, to encourage lower-risk means of pest control, and to protect vulnerable populations, particularly children, from pesticide risk. To deal with some of the major challenges facing the Agency in meeting our objectives under this goal, EPA will work to: (1) ensure the consistency of science policies and regulatory decisions with the latest scientific knowledge and standards; (2) maintain a balance between stakeholder participation, rapid risk mitigation, agricultural needs, availability of viable reduced risk alternatives and meeting statutory deadlines; (3) measure the effects of regulatory actions in terms of risk prevention or addressing and measuring the effects in terms of risk reduction; and (4) effectively coordinate our food-safety program with the United States Department of Agriculture (USDA) and the Food and Drug Administration (FDA), who monitor pesticide residues in food and collect authoritative data on patterns of food consumption.

EPA will also use a number of innovative strategies to reduce pesticide risk. These strategies and approaches, some of which pre-date FQPA, involve working closely with all of the stakeholders involved in agriculture, such as chemical manufacturers, commodity groups, individual growers, and state, tribal, and federal regulatory agencies. One of the key strategies EPA will use under this goal is expediting the registration of lower-risk pesticides. EPA expedites the registration process for safer pesticides so that it takes about half the time it takes the Agency to register conventional pesticides. Providing this incentive to chemical manufacturers has resulted in a dramatic increase in the number of new, safer pesticides used on

America's farms.

In addition, EPA will encourage the use of safer pest management practices through the Pesticide Environmental Stewardship Program and the FQPA Strategic Agricultural Initiative. These projects demonstrate creative, cost-effective and environmentally friendly farm management practices and provide growers with "a reasonable transition" away from the highest risk pesticides.

The Agency will use cutting-edge science to expand further our knowledge of the effects of pesticides on people. This includes developing tools for evaluating and predicting effects on human health of cumulative exposure; developing improved measurements and exposure methods to detect, quantify, and characterize pesticide exposure to infants and children; developing a framework to collect information to estimate the potential for non-dietary exposures for infants/children; screening and testing chemicals to identify endocrine disruptors; and identifying the pesticides, pathways and activities representing the highest potential for exposure and health risk.

EPA's pesticide enforcement activities will further support efforts to ensure a safe food supply for all Americans through coordinated outreach and compliance assistance strategies; compliance assistance to farming communities on changes resulting from regulatory actions; prompt action on referrals from FDA and/or USDA for over-tolerance pesticides; and compliance assistance to farmers and others when disposal and storage regulations are finalized.

The Agency's regional offices will also provide a crucial field presence in various states and in Indian Country, by promoting the use of reduced-risk pesticides, providing outreach and education to growers and private pesticide users, encouraging the use of alternative pest management strategies, and monitoring post-reregistration use of pesticides.

Relating Annual Performance Goals to Strategic Objectives

EPA's annual program outputs under this goal–such as the number of annual pesticide registrations, reregistrations, and tolerance reassessments–are indirectly related to the objectives of reducing risk from pesticide residues and reducing the use on food of pesticides not meeting the current health standard. In registering pesticides, the Agency ensures that new pesticides entering the market meet current health standards, while the process of pesticide reregistration and pesticide tolerance reassessment ensure that older pesticides (those registered prior to the implementation of FQPA) are brought up to current health standards. FQPA also requires EPA to conduct periodic reviews of registered pesticides, thus we will be ensuring the safety of registered pesticides on an ongoing basis, as new scientific technologies and information become available.

Developing effective annual performance goals that relate to reducing pesticide risk is complex. Pesticide risk is rooted in the hazards posed by the pesticide (such as neurotoxicity, or the ability to cause cancer), but also depends on how, where, and how often the pesticide is used, what

happens to it after it is used, what populations are exposed to it, how they are exposed, how often, and at what levels.

We will continue to pursue developing more direct risk-based annual performance goals and measures for the objectives under this goal. The Agency is working with stakeholders to develop better performance goals and measures, and will incorporate them into the Agency's Annual Performance Plans as soon as their merit is demonstrated. Pending development of more direct measures of risk, however, EPA will be relying on program outputs for our annual goals, such as the number of reduced-risk pesticide registrations, and surrogates of risk information for our annual performance measures, such as the aggregate use of pesticides of particular concern, based on data from existing sources of production data and estimates of agricultural use for selected pesticides.

External Factors

Our ability to achieve Goal 3 and its objectives depends on several factors over which the Agency has only partial control or influence. In working to achieve safe food, EPA's success depends on partnerships with other federal agencies, states, tribes, local governments and regulated parties. EPA coordinates with USDA and FDA to ensure the safe use of pesticides. These agencies have the responsibility for monitoring and controlling residues and other environmental exposures. In addition, EPA collaborates with these agencies to coordinate with other countries and international organizations which share safe food goals with the United States. In meeting our safe food goal, the Agency also depends at least in part on the voluntary cooperation of the public and agricultural community.

In addition, new commitments within the Administration, new or amended legislation, and/or lawsuits that delay or stop planned EPA or state/tribal partners' pesticide-related activities, may prevent the Agency from achieving our safe food objectives. Likewise, economic growth and changes in producer and consumer behavior could slow down the Agency's ability to accomplish this goal. Further, large-scale accidental releases of pesticides, or rare catastrophic natural events such as flooding or drought, may also impact EPA's ability to achieve our objectives.

In the longer term, new environmental technology, or unanticipated complexity or magnitude of the health and environmental problems posed by pesticides may affect the time frame for achieving our goal and objectives. Newly identified environmental problems or economic priorities could have a similar effect on our long-term results. For example, pesticide use is affected by unanticipated outbreaks of pest infestations and/or disease factors, which can require EPA to consider petitions for emergency uses of higher risk pesticides for economic reasons. Finally, while the Agency can provide the chemical industry with incentives to submit reduced risk or reduced use pesticides for registration, EPA cannot control the number or type of incoming requests for registration actions. As a result, the Agency's projection of regulatory workload is subject to change.

Goal 4: Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces, and Ecosystems

Pollution prevention and risk management strategies aimed at cost-effectively eliminating, reducing, or minimizing emissions and contamination will result in cleaner and safer environments in which all Americans can reside, work, and enjoy life. EPA will safeguard ecosystems and promote the health of natural communities that are integral to the quality of life in this nation.

Importance of This Goal

More than 75,000 chemicals are sold commercially today, with an estimated 2,000 new chemicals and 40 genetically engineered microorganisms introduced annually. Some of these chemicals may be potentially hazardous and present risks to human health and the environment. Of these substances, persistent bioaccumulative toxic (PBTs) chemicals are a focal point for EPA because these chemicals are not only hazardous but also persist in the environment for many years and accumulate to toxic levels.

In addition to the chemicals and microorganisms, lead is an element of particular concern. An estimated 65 million homes still contain old lead paint, and recent data from the *National Health and Nutrition Examination Survey* (NHANES) show that nearly 1 million children under six have elevated blood levels of lead, which are associated with intelligence quotient deficits, learning disabilities, and other ailments.

Another concern is the quality of indoor air. Poor indoor air quality may be contributing to the rate of asthma in America. An estimated 20 to 30 million Americans have asthma, which leads to the death of approximately 4,000 people per year. Asthma is more prevalent among children, especially children in low-income and minority communities.

Under this goal, EPA will address these and other threats to human health and the natural environment by developing and implementing pollution prevention and risk reduction strategies.

Objectives

- By 2005, public and ecosystem risk from pesticides will be reduced through migration to lower-risk pesticides and pesticide management practices, improving education of the public and at-risk workers, and forming "pesticide environmental partnerships" with pesticide user groups.

- By 2007, significantly reduce the incidence of childhood lead poisoning and reduce risks associated with polychlorinated biphenyls (PCBs), mercury, dioxin, and other toxic chemicals of national concern.

- By 2007, prevent or restrict introduction into commerce of chemicals that pose risks to workers, consumers, or the environment and continue screening and evaluating chemicals already in commerce for potential risk.

- By 2005, 16 million more Americans than in 1994 will live or work in homes, schools, or office buildings with healthier indoor air.

- By 2007, prevent, reduce, recycle, or properly dispose of chemical and municipal solid wastes, including PBTs. By 2005, reduce by 20 percent the actual (from 1992 levels) and production-adjusted (from 1998 levels) quantity of Toxic Release Inventory (TRI)-reported toxic pollutants released, disposed of, treated, or combusted for energy recovery, half through source reduction.

- By 2005, EPA will assist all federally recognized tribes in assessing the condition of their environment, help in building tribes' capacity to implement environmental management programs, and ensure that EPA is implementing programs in Indian country where needed to address environmental issues.

Results We Intend to Achieve

We will continue working to fulfill our mandate under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), which requires that EPA control unreasonable risks of pesticides to human health and the environment in general. Specifically, we will address risks from non-food use pesticides with a collection of activities, such as chemical information gathering, testing, risk screening, risk assessment, and voluntary and regulatory risk management actions. Likewise, the Toxic Substances Control Act (TSCA) mandates that EPA control unreasonable risks of chemicals in commerce. We intend to continue systematically screening all chemicals in commerce and identifying those believed to be used safely and those that warrant concern. We will also continue our progress toward reducing the levels of lead poisoning, achieving healthier indoor environments, and providing national leadership for waste reduction and improved recycling efforts. We expect to achieve the following specific accomplishments:

- By 2010, reduce by at least ten percent (from the average 1993 to 1995 levels) the incidence of adverse health effects from pesticide exposures for which individuals required health care. By 2008, reduce potential exposure (as indicated by sales or use volume) to carcinogenic and cholinesterase inhibiting neurotoxic pesticides used in or around residential areas by 50 percent each from 1995 levels for both consumer- and restricted-use pesticides.

- By 2005, reduce by 50 percent from 1995 levels the number of incidents and amount of mortality to terrestrial and aquatic wildlife caused by the 15 pesticides currently responsible for the greatest mortality to such wildlife. Each year, none of the top 15 species on the Office of Pesticide Programs/Fish and Wildlife Service/U.S. Department of Agriculture priority list of threatened or endangered species will be jeopardized by

exposure to pesticides. By 2005, implement stewardship strategies to reduce pesticide risk by the use of Integrated Pest Management (IPM) through agreements with 80 pesticide user groups.

- By 2010, detections of the 15 pesticides most frequently found in surface water in the U.S. Geological Survey (USGS) 1994 National Water Quality Assessment (NAWQA) data will be reduced by 50 percent. Any new pesticide registered since 1996 found in USGS 2010 NAWQA data for surface water will have a detection frequency no greater than 30 percent. By 2010, 50% of all pesticides with the potential to leach to ground water will be managed through labeling or other methods to prevent ground-water contamination.

- By 2007, EPA will reduce the number of children between the ages of 1 and 5 years with levels of lead in their blood at or above 10 ug/dL from approximately 900,000 in 1991 through 1994 to less than 500,000.

- By 2007, EPA will achieve continued reductions in remaining uses of PCBs at concentrations above 500 ppm in transformers and capacitors, retiring from service and safely disposing of 120,000 transformer units and 210,000 capacitor units cumulatively from 2002 through 2007. EPA will also achieve significant reductions in exposures to toxic fibers, mercury, and dioxin.

- By 2007, EPA will allow no new chemicals for which it receives Pre-Manufacture Notifications to be introduced into commerce that pose significant un-managed risks to workers, consumers, or the environment.

- By 2007, inform the public about chemical risks by making complete screening level hazard data sets publicly available for all 2,800 High Production Volume (HPV) chemicals identified in the 1998 Chemical Use Inventory Update and make publicly available internationally recognized hazard classification determinations for at least one human health and one ecological endpoint for each HPV chemical. EPA will also make publically available basic screening level information on endocrine disruption potential for at least 50 HPV chemicals by 2007.

- By 2005, to reduce lung cancer, respiratory diseases including asthma and other indoor air quality (IAQ)-related health problems, 11.5 million more Americans will be exposed to healthier air in their homes by mitigation of 700,000 homes with high radon levels, the construction of 1 million homes with radon-resistant construction techniques, and the reduction of the proportion of households in which children 6 years and younger are regularly exposed to smoking from 27 percent in 1994 to 15 percent. To reduce health problems in the nearly 10 million children made ill annually from contaminated indoor air in schools, 15 percent of the nation's schools will adopt good IAQ practices consistent with EPA's “Tools for Schools” guidance. To reduce IAQ-related illness from contaminated air in the workplace, 5 percent of office buildings will be managed with

good IAQ practices consistent with EPA guidance as set forth in EPA's "Building Air Quality" guidance. By 2005, 1 million children with asthma will have reduced exposure to indoor asthma triggers. In addition, 200,000 low income adults with asthma and 2.5 million asthmatics overall will have reduced exposures to indoor asthma triggers.

- By 2007, EPA will promote the use of pollution prevention (P2) for meeting environmental goals by (1) increasing the purchase of environmentally preferable products by the federal government; (2) increasing adoption of environmentally protective business practices such as environmental accounting practices and P2 opportunity assessments; (3) increasing integration of P2 into EPA's regulatory, enforcement, and compliance programs; and (4) reducing the generation of pollutants by facilities assisted by state and tribal P2 programs supported by EPA.

- By 2007, Design for the Environment (DfE) voluntary partnership risk-reduction efforts will, since DfE's inception in 1992, cumulatively lower worker exposure and toxic chemical use and wastes for more than 4 million workers in more than 400,000 businesses using more than 750 chemical substances.

- By 2005, facilitate source reduction to reduce municipal solid waste generation to 4.3 lbs/person/day and facilitate increased recycling, including composting, to divert at least 35 percent of municipal solid waste from landfilling and combustion.

- By 2007, realize the following cumulative results through commercialization of green chemistry approaches [as evidenced in nominations submitted for EPA's Green Chemistry Challenge Awards from 1996 (year awards program initiated) through 2007]: elimination of 250 million pounds of hazardous substances from new and existing chemical products and processes; elimination of 25 million gallons of hazardous solvents; savings of 2 billion gallons of water; and savings of 25 billion Btu of energy.

- By 2007, EPA will utilize multiple tools to reduce use and releases of priority PBTs by preventing the entry of new PBTs into commerce; reducing by 50 percent from 1991 levels the volume of priority PBTs in hazardous waste streams (to be listed by EPA in FY 2000); and reducing by 50 percent from 1990 levels releases of mercury to air nationwide and to water within the Great Lakes Basin.

Means and Strategies

EPA's strategy of first choice is to prevent pollution before it occurs. Pollution prevention precludes environmental damage and the necessity for costly cleanups. When pollution prevention cannot be achieved, EPA will strive to reduce the toxicity and quantity of waste and increase recycling. These approaches can help to preserve our natural resources, decrease reliance on treatment and disposal, and mitigate global climate change.

The Agency will focus specifically on several strategies:

Pesticide Risk Reduction
By mandating the conditions of registration, marketing, and use of non-food use pesticides, such as medical and household disinfectants, wood preservatives, household pest and lawn care products, EPA will address adverse effects on workers, non-target organisms (especially endangered species), and natural resources, including groundwater and ecologically important surface waters. Furthermore, enhanced public education and appropriate labeling coupled with accelerated approval of safer alternative pesticides can reduce risk to the environment, workers, homeowners, and consumers.

Cooperation with Industry
EPA publicly recognizes companies pioneering pollution prevention work through our Green Chemistry Awards and publicizes case studies to serve as industry examples. We will continue to supply environmental accounting tools to help industry evaluate alternative environmental costs. EPA will work with industry through the Design for the Environment program to identify cost-effective processes and products that promote pollution prevention.

Public Right-to-Know
EPA believes that an informed and knowledgeable public will be able to make decisions at the local level to safeguard their health, the health of their families, and the environment. We will continue to collect data about existing chemicals and to provide that information to the public using a variety of communications means, including printed and electronic media.

Managing Existing Chemicals
EPA will continue to assess and manage risks associated with commercial chemicals and develop chemical exposure and hazard data. The High Production Volume (HPV) Chemicals Challenge, for example, will make hazard data available to the public for more than 2,800 of the HPV chemicals. EPA will work to reduce exposure to PBT pollutants through the PBT Initiative. (See Chapter 3 for a discussion of EPA's PBT program.)

Assessing New Chemicals
EPA will continue to assess new chemicals before they are manufactured or imported. This approach will advance EPA's preferred strategy of preventing pollution and will minimize or eliminate regulatory burdens on new chemicals that replace riskier substances already in the marketplace.

Lead
To reduce Americans' risk of lead poisoning, EPA will continue implementing national standards for exposure to lead. We will work with all 50 states, territories, and tribes to train and certify lead abatement professionals. We will expand educational programs that target low-income minority populations, which experience the highest incidence of lead poisoning. In addition, we will promote sound and proven technologies to eliminate lead-based paint in housing cost effectively.

Indoor Air
We will continue to conduct education and outreach programs to inform the public about the health risks posed by poor indoor air quality. Working through partnerships and technology transfer programs, we will promote behavioral changes and technology-based practices that improve indoor environmental quality.

Waste Management and Recycling
To control chemicals entering hazardous waste streams, we will apply an integrated solid waste management approach, which includes source reduction, recycling of municipal solid waste through voluntary programs, and an increase in the number of goods made from recycled materials. EPA also will continue to grant states resources they need to build strong pollution prevention components to their local environmental programs.

Conditions on Tribal Lands
Using cooperative agreements under the General Assistance Program (GAP), we will survey and assess the environmental interests and needs on Indian country.

Science
We will develop and improve methods of evaluation of human health endpoints to strengthen our pollution prevention program. We will develop models to identify ecological hazards and predict ecological risk.

Relating Annual Performance Goals to Strategic Objectives

EPA will use trend data of incidences of pesticide poisonings, pesticide presence in groundwater, and incidences of wildlife mortality to measure success in protecting human health and the environment from the use of nonagricultural pesticides. Our efforts to reduce the levels of lead in children's blood will be measured by NHANES.

A major goal for EPA is the reduction of PBT pollutants. We will utilize TRI data to both measure these reductions and to prioritize further pollution prevention activities to achieve our long-term goals. Other performance goals and measures involve gauging the health of indoor air by evaluating (1) implementation of good indoor air quality practices in schools and commercial buildings; (2) reduction of smoking indoors; (3) mitigation of radon in homes; (4) reduction of exposure to indoor asthma triggers; and (5) adoption of indoor environmental quality education and outreach programs by tribes. Targets we set for ourselves will advance our progress toward our goal of improving indoor air quality in homes, schools, and office buildings.

External Factors

A number of external factors will impact EPA's success in pollution prevention. For example, the number of inspections, risk assessments, and abatements performed to reduce the risks from lead will depend on availability of funding from other federal agencies and programs. Similarly, EPA's progress in improving indoor air is dependent on participation by other federal, state,

tribal, industry, and nonprofit organizations. The success of EPA's Tribal Program relies heavily on state and tribal cooperation.

Demands from industry and business will also impact our ability to meet our pollution-prevention and risk-reduction objectives. A strong economy increases consumption and can lead to increased waste generation. Additionally, EPA relies on public outreach, incentives, and voluntary actions by individuals (e.g., homeowners, school administrators, parents, building owners) to protect human health and the natural environment.

Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response

America's wastes will be stored, treated, and disposed of in ways that prevent harm to people and the natural environment. EPA will work to clean up previously polluted sites, restore them to uses appropriate for surrounding communities, and respond to and prevent waste-related or industrial accidents.

Importance of This Goal

Improper waste management and disposal threaten human health and the maintenance of healthy ecosystems. Uncontrolled hazardous and toxic substances, including radioactive waste, migrate to the air, groundwater, and surface water—ultimately affecting streams, lakes, rivers, and public water supplies. To protect against these risks, EPA has developed and implemented policies to clean up active and inactive waste disposal sites; promote safe waste storage, treatment, and disposal; and prevent spills and releases of toxic materials.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund) and the Resource Conservation and Recovery Act (RCRA) provide the legal authority for most of EPA's work toward this goal. EPA and its partners use Superfund authority to clean up inactive and abandoned waste sites and, when possible, to encourage the redevelopment of these sites through the Agency's Brownfields program. Under RCRA, EPA works in partnership with states and tribes to address risks associated with leaking underground storage tanks (LUSTs) and with hazardous and nonhazardous waste generation and management at active facilities. EPA also uses the authority of the Clean Air Act, Clean Water Act, and the Oil Pollution Act of 1990 to protect against spills and releases of hazardous materials.

Objectives

- By 2005, EPA and its federal, state, tribal, and local partners will reduce or control the risk to human health and the environment at more than 374,000 contaminated Superfund, RCRA, underground storage tank (UST), brownfield, and oil sites and have the planning and preparedness capabilities to respond successfully to all known emergencies to reduce

the risk to human health and the environment.

- By 2005, EPA and its federal, state, tribal, and local partners will ensure that more than 277,000 facilities are managed according to the practices that prevent releases to the environment.

Results We Intend to Achieve

EPA strives to apply the fastest, most effective waste management and cleanup methods available, while involving affected communities in the decision-making process. Waste management techniques include recycling, land disposal, and combustion; however, different wastes require different treatment and disposal methods. Decisions about cleanup are based not only on technical considerations, but with community, human health, and environmental concerns in mind. We expect to achieve the following specific accomplishments:

- By 2005, cleanup of 370,000 leaking UST sites will be completed or initiated under the supervision of EPA and its state or tribal partners.

- By 2005, EPA and its partners will reduce the risks that Superfund sites pose to public health and the environment by (1) completing construction at a total of 1,080 National Priorities List (NPL) sites; (2) conducting an annual average of 300 Superfund emergency responses and removal actions to address significant hazardous substance releases; (3) determining if Superfund cleanup is needed at 85 percent of the sites entered into the Superfund site data base (CERCLIS); (4) maximizing Potentially Responsible Party (PRP) participation in conducting/funding response actions; (5) meeting statutory deadlines for federal facility activities; and (6) responding to significant oil discharges in the inland zone in an effective manner.

- By 2005, EPA will continue to maximize the participation of PRPs in conducting/funding response actions at Superfund sites while promoting fairness during the enforcement process. Based on the urgency of the situation and/or the capabilities of the PRPs, EPA will optimize PRP removals. Since 1992, responsible parties have performed or financed over 70 percent of the new remedial construction starts at Superfund sites, and EPA's goal is to maintain or increase that level of participation. In addition, EPA will address cost recovery at 100 percent of all NPL and non-NPL sites with total past costs equal to or greater than $200,000 which need to be addressed prior to the expiration of the Statute of Limitations.

- By 2005, EPA will enter into an Interagency Agreement (IAG) with the responsible federal agency at all federal facilities as soon as possible after listing on the NPL but no later than 180 days after completion of the first remedial investigation and feasibility study (RI/FS).

- By 2005, 95 percent of 1,714 high priority RCRA facilities will have human exposure to

toxins controlled and 70 percent of these facilities will have toxic releases to groundwater controlled.

- Through 2005, EPA will provide improved methods and dose-response models for estimating risks from complex mixtures contaminating soils and groundwater; provide improved methods for measuring, monitoring, and characterizing complex wastes in soils and groundwater; and develop more cost-effective and reliable technologies for clean-up of contaminated soils and groundwater. Also, through 2005, EPA will demonstrate/verify, via the Superfund Innovative Technology Evaluation (SITE) program, more cost-effective technologies for remediation and characterization of contaminated soils, sediments, and groundwater, and more cost-effective restoration/rehabilitation of ecosystems impacted by these sources.

- By 2005, EPA and its state, tribal, and local partners will facilitate the redevelopment of 400 brownfields properties by providing technical and financial assistance to communities, resulting in $3 billion of leveraged redevelopment funds, generation of 6,500 jobs, and initiation of 2,500 site assessments.

- By 2005, EPA will respond to 100 percent of all known requests to facilitate and assist with the transfer of federal properties for use, reuse, or redevelopment.

- By 2005, EPA's readiness to respond successfully to hazardous substance releases, oil discharges, and natural disasters will be at a high state as defined by specific criteria in core emergency response and preparedness areas. By 2005, the consequences of spills to environmentally and economically sensitive areas will be lessened by pre-spill contingency planning with local, state, tribal, and other federal agencies in areas of greatest risk and/or vulnerability. By 2005, 50 percent of the nation's largest metropolitan areas (having populations greater than 1 million) will have been trained and equipped to respond effectively to terrorist events that involve chemical, biological, or radiological agents.

- By 2005, the annual number of confirmed releases from USTs will not exceed 6,500, in comparison to the 24,000 reported in FY 1997.

- By 2005, of the facilities that have submitted risk management plans identifying their chemical risks and processes, 20 percent of those facilities that pose significant risk will have reduced their potential of having a major chemical accident. Local communities will incorporate facility risk information into their emergency preparedness and community right-to-know programs.

- By 2005, 7,100 facilities will be in compliance with oil pollution prevention regulations and, therefore, better prepared to prevent oil spills.

- Through 2005, EPA will provide integrated, multimedia, multipathway exposure and risk

methods and models for assessing the risks from waste facilities and provide improved techniques to monitor, control, and prevent releases during waste management.

- By 2005, EPA and its partners will prevent radioactive releases into the environment by safely managing and disposing of all EPA-regulated radioactive waste.

- By 2005, at least 80 percent of waste management facilities located in the United States, in its territories, or on tribal lands will have controls in place to prevent dangerous release to air, soil, and groundwater.

Means and Strategies

By meeting these objectives, EPA will have made significant progress toward achieving our long-term goal of promoting better waste management, restoring contaminated waste sites, and preventing waste-related or industrial accidents. Agency research to support safe waste management will continue to yield cost-effective and innovative technologies and scientifically sound approaches for site cleanup. To achieve our long-term goals, EPA is committed to working efficiently with states, tribes, and stakeholders to make the most of available resources.

EPA will continue to complete construction at Superfund sites, including those at federal facilities, to reduce risks to human health. We will rely on our "enforcement first" policy, ensuring cleanup by responsible parties through the successful implementation of the administrative reforms. We will strongly encourage PRP participation, especially for new construction starts at non-federal NPL sites, and will continue to emphasize cost recovery.

RCRA corrective action implementation at hazardous waste management facilities will remain one of EPA's highest priorities. The corrective action program will focus on controlling human exposure to toxins and groundwater releases at more than 1,700 high-priority facilities jointly identified by EPA regions and their state partners. EPA regional offices will work with states and tribes to implement the RCRA Cleanup Reforms initiative, encouraging cleanups, reducing impediments to cleanup actions, enhancing state and stakeholder involvement, and exploring policy changes regarding liability concerns to further encourage facility cleanup and reuse. We intend to make maximum use of program flexibility and develop practical approaches through comprehensive training, outreach, application of new enforcement tools, and enhanced community involvement through greater public access to information.

The UST program will continue to support state efforts to promote compliance with UST requirements, encourage proper operation and maintenance of UST systems, and make cleanups better, cheaper, and faster. EPA will assist states in using Pay-for-Performance cleanup contracting and other economic incentives to spur private sector innovation, lower cleanup prices, and produce faster results. EPA will also promote a risk-based approach to decision-making in state and tribal UST programs by developing ways to measure its performance and by helping to resolve regional barriers to this approach. In addition, the UST program will continue to support information exchange, assist state enforcement efforts, develop policy and technical

guidance, and sponsor workshops and training events. Of special concern to the program are issues emerging around methyl tertiary butyl ether (MTBE) and other fuel oxygenates, such as the potential need to reassess previously cleaned sites for additional remediation.

EPA is committed to integrating economic revitalization considerations into the process of cleaning up abandoned, inactive, and contaminated waste sites and other properties, and we will take full advantage of Community-Based Environmental Protection and other available tools to do so. The Brownfields program will continue working with states and local communities to assess, clean up, and reuse former industrial and commercial properties where expansion or redevelopment is complicated by potential environmental contamination, liability, or other concerns.

RCRA corrective action and UST programs will continue to identify instances where redevelopment of contaminated sites is complicated by regulatory or programmatic impediments. EPA will work with its partners and stakeholders to overcome these barriers through the development of streamlined, tailored, and innovative approaches to permitting and remediation. The Superfund program will continue to implement the Superfund redevelopment initiative by identifying during the assessment phase sites that can be returned to productive use once cleanup is completed; allaying liability concerns through the issuance of comfort/status letters and prospective purchaser agreements; and working with communities and other stakeholders to ensure that these sites are "recycled" back into productive use. Management, response, and preparedness programs will target special needs on tribal lands, incorporating cultural values into decision-making, supporting the closure of open dumps, and building capacity of tribal waste management and response organizations.

Relating Annual Performance Goals to Strategic Objectives

EPA's long-term performance under this goal will be measured according to progress in achieving milestones that waste management, response, prevention, and preparedness programs have established through 2005. Annual performance goals, supported by a variety of measures, are determined each year and provide a limited set of data to demonstrate accomplishments leading to long-term strategic objectives. Examples of our annual performance goals under Goal 5 include the number of (1) construction completions at Superfund NPL sites; (2) high-priority RCRA corrective action sites with controls in place to prevent human exposures and toxic releases to groundwater; (3) hazardous waste facilities with controls in place to prevent dangerous releases to air, soil, and groundwater; (4) UST cleanups completed and USTs in compliance with leak detection and 1998 upgrading, replacement, or closure requirements; and (5) leveraging of redevelopment dollars and provision of community assistance through the Brownfields program. These and other annual goals relate directly to the results that we intend to achieve under Goal 5, and ultimately, to our objectives of reducing or controlling risk to human health and the environment at more than 374,000 contaminated sites and ensuring that the more than 277,000 facilities are managed according to practices that prevent dangerous releases to the environment.

External Factors

There are a number of external factors that could substantially impact the Agency's ability to achieve objectives under this goal. These include heavy reliance on state partnerships, development of new environmental technology, commitment by other federal agencies, and statutory barriers.

The 2005 target of 1,080 Superfund construction completions is dependent on the performance of other federal agencies, such as the Department of Defense and the Department of Energy, as are the establishment of the Restoration Advisory Boards (RABs)/Site-Specific Advisory Boards (SSABs) and other cleanup activities. In addition, the Agency's goals of construction completions, cost recovery, and maximizing PRP participation are heavily dependent on the progress of PRP negotiations, agreements with states and tribes, and the nature of contamination at NPL sites.

For the RCRA and UST programs, achievement of the release prevention and cleanup objectives and attainment of our 2005 targets will depend heavily on the participation of states that have been authorized or approved to be the primary implementors of these programs.

For the risk management and preparedness programs, the Agency recognizes that accident prevention and response, as well as preparedness for environmental terrorist incidents, are inherently local activities. To succeed, the program relies on the commitment and accomplishments of various partners and stakeholders, including industry, state and local government, and other federal agencies. EPA's success will depend on the willingness and ability of these partners and stakeholders to deliver on their commitments and obligations. EPA plays a key role, but we neither control the resources nor set the priorities that could ensure all federal, state, and local participants are engaged at a level sufficient to meet our commitments.

Goal 6: Reduction of Global and Cross-Border Environmental Risks

The United States will lead other nations in successful, multilateral efforts to reduce significant risks to human health and ecosystems from climate change, stratospheric ozone depletion, and other hazards of international concern.

Importance of This Goal

Environmental hazards, like ecosystems, are not limited by national borders. Transboundary circulation of toxic chemicals; marine pollution; depletion of the stratospheric ozone layer; climate change; safety issues posed by the international trade in chemicals, pesticides, and biotechnology products; and similar global issues all pose significant risks to the United States. Unilateral domestic actions and investments cannot adequately protect the well-being of our citizens or our environment from such threats. For this reason, collaboration with other countries is essential in protecting the global environment. Goal 6 programs address this need by fostering

multilateral cooperation on environmental issues and enhancing the technical capacity for addressing environmental risks.

Objectives

- By 2005, reduce transboundary threats to human health and shared ecosystems in North America, including marine and Arctic environments, consistent with our bilateral and multilateral treaty obligations in these areas, as well as our trust responsibility to tribes.

- By 2010, U.S. greenhouse gas emissions will be substantially reduced through programs and policies that also lead to reduced costs to consumers of energy and reduced emissions leading to cleaner air and water. In addition, EPA will carry out assessments and analyses to provide an understanding of the consequences of global change needed for decision making.

- By 2005, ozone concentrations in the stratosphere will have stopped declining and slowly begun the process of recovery. In addition, public education to promote behavior change will result in reduced risk to human health from UV overexposure, particularly among susceptible subpopulations such as children.

- By 2006, reduce the risks to ecosystems and human health, particularly in tribal and other subsistence-based communities, from persistent, bioaccumulative toxicants (PBTs) and other selected toxins which circulate in the environment on global and regional scales.

- Through 2005, integrate environmental protection with international trade and investment and increase the application of cleaner and more cost-effective environmental practices and technologies in the United States and abroad to ensure that a clean environment and a strong economy go hand-in-hand.

Results We Intend to Achieve

Through collaborative efforts with other countries and international organizations, our international programs will reduce risks to human health and the environment within the United States and globally. We expect to achieve the following specific accomplishments:

- By 2010, the air will be safer to breathe in areas along the U.S./Mexico border that exceed one or more of the National Ambient Air Quality Standards (NAAQS) and all areas will attain the standards within the time frames described in Goal 1, Clean Air.

- By 2005, the population in the U.S./Mexico border area (including tribes) that is served by adequate drinking water, wastewater collection, and treatment systems will increase by 1.5 million through the design and construction of water infrastructure.

- By 2005, disposal rates of hazardous waste generated in the U.S./Mexico border area will

be reduced by 8 percent (on a per employee basis) and Chemical Accident Contingency Plans will be in place in 10 of the 14 pairs of Sister Cities along the U.S./Mexico border.

- Restore and maintain the chemical, physical, and biological integrity of the Great Lakes Basin Ecosystem, particularly by reducing the level of toxic substances, protecting human health, restoring vital habitats, and restoring and maintaining stable, diverse, and self-sustaining populations.

- By 2005, reduce transboundary sources of pollution in the Arctic environment, including a 25 percent reduction of high-level sources of radioactive waste in the Arctic and a 30 percent reduction of stockpiled, obsolete, PCB-containing transformers in the Russian Arctic in support of the Long-Range Transboundary Air Pollution (LRTAP) Convention. Reduce pollution of the marine environment through a reduction of vessel discharges, ocean dumping, and land-based sources of marine pollution, including a global prohibition, no later than 2008, on the use of tributyltin (TBT) on vessels.

- By 2010, EPA will substantially offset the growth in U.S. greenhouse gas emissions through programs that help organizations and consumers capture the environmental and economic benefits that untapped energy efficiency and other opportunities offer the nation. EPA programs are expected to offset forecasted growth by 20- to 35 percent relative to 1990 emission levels, equivalent to annual reductions of between 130 and 200 million metric tons of carbon equivalent (MMTCE) in 2010.

- In 2005, the United States will continue to implement its international commitments under the Framework of the Convention on Climate Change regarding greenhouse gas emissions and sequestration. EPA will formulate policy options and analyze their economic and other implications to support U.S. decision making and catalyze developing countries to adopt and meet international commitments.

- By 2010, EPA will conduct assessments, including developing assessment methods and conducting attendant research, of the consequences of global change on human health, ecosystems, and social well being.

- By 2005, atmospheric concentrations of the ozone-depleting substances CFC-11 and CFC-12 will have peaked at no more than 300 and 570 parts per trillion respectively, while production of these chemicals will be allowed only for very limited essential uses. In addition, except for critical uses where viable alternatives are not available, all methyl bromide production and import and 45 percent of all HCFC production and import will be phased out, further accelerating the recovery of the stratospheric ozone layer.

- By 2005, 8 million children in 17,000 elementary and middle schools across the United States will experience reduced risk from UV overexposure as a result of the environmental and health education efforts of the SunWise school program.

- By 2005, help to ensure that at least 75 developing countries comply with their obligation under the Montreal Protocol to achieve a 50 percent reduction in their production and consumption of CFCs.

- By 2006, substantially reduce the global release and long-range, transboundary movement of PBTs and other selected toxins by characterizing baseline conditions and transport patterns, negotiating key international treaties and initiatives, and engaging in the information exchange and capacity building needed to facilitate the implementation of these treaties and initiatives, especially in key identified source countries. In so doing, reduce the worldwide use of lead in gasoline to below 1993 levels, reduce domestic mercury releases to the air and water from human activities in the United States by 50 percent from 1990 levels, and reduce domestic mercury use by 50 percent from 1995 levels.

- By 2006, EPA will develop and standardize chemical testing methods, hazard characterization, exposure characterization (including monitoring instrumentation and methods), risk assessment, and good laboratory practices; collect release data through use of pollution release and transfer registers; and share the technical and financial burden of testing and assessing specific chemicals.

- Through 2005, address the regulatory and other environmental implications of trade and investment policies, agreements, and programs; level up public health and environmental standards with U.S. trading partners; and ensure that environmental policymaking takes into consideration trade and investment concerns.

- By 2005, use technical cooperation and information exchange on best practices to achieve measurable improvements in environmental protection in the United States and abroad and to support other national policy objectives.

Means and Strategies

We achieve our international objectives through a variety of approaches. We work with the Department of State and other agencies to negotiate and implement environmental agreements with other countries; cooperate with other countries to address specific environmental risks; and work collaboratively with our federal, state, and tribal partners and with business/industry associations, environmental groups, and other stakeholders to research, develop, and promote sustainable technologies in the United States and abroad.

Major programs, such as those focused on climate change, the U.S./Mexico border, or the Great Lakes, have developed targeted strategies for meeting their objectives. For example, we are approaching our climate change objectives by working in partnership with business, government agencies, and other partners to deliver multiple benefits, from cleaner air to lower energy bills, while improving overall scientific understanding of climate change and its potential consequences. To help decision makers understand the possible impacts of climate change, our

Global Change Research Program is conducting a series of assessments that identify the potential consequences of global change. These assessments and attendant research to support the assessments will address issues of greatest concern to stakeholders. We are also working with our partners to improve overall scientific understanding of climate change and its potential consequences. These programs also aim to remove market barriers and to deploy efficient technologies in the residential, commercial, transportation, and industrial sectors.

Our U.S./Mexico Border and Great Lakes Basin programs both incorporate voluntary and regulatory components. Along the U.S./Mexico border, we will continue to focus on priority issues, such as water infrastructure, hazardous waste management, and outreach to communities and businesses in the region. In the Great Lakes Basin, we will continue to target multimedia problems through monitoring and modeling efforts such as the Great Waters atmospheric deposition program, the Integrated Atmospheric Deposition Network, and Great Lakes National Program Office's open water monitoring. We are forming partnerships that will develop lake-wide plans that employ a comprehensive, ecosystem approach to addressing toxins. In addition, we are working with our partners and stakeholders to develop remedial action plans for each of the "areas of concern," geographic areas where beneficial use of water or biota is adversely affected or where environmental criteria are exceeded. We are coordinating our regulatory efforts in the Great Lakes with Canadian federal, state, tribal, and provincial environmental organizations; together, we are using all available authorities to restore targeted areas.

The promotion of sustainable technologies is a strategy that underlies a number of our programs. For example, we will continue to develop and promote advanced technologies for clean and energy-efficient vehicles, including fuel cell and other technologies. These efforts will complement broader federal tax policy and voluntary initiatives that encourage market penetration of new technologies. To restore and protect the stratospheric ozone layer, we will continue efforts to limit the production and use of ozone-depleting substances and to develop and promote the use of safe alternative compounds. In conjunction, we will also continue our public information and education efforts to reduce the risks of overexposure to ultra violet (UV) radiation. Through our Arctic program, we are designing specific technical assistance projects to minimize the potential release of radionuclides and other pollutants that might undermine the health of the Arctic ecosystem.

We will continue to work with other countries to negotiate and implement specific treaties, while also collaborating on international environmental projects. For example, to prevent degradation of the marine environment, we are working with the Department of State, the National Oceanic and Atmospheric Administration (NOAA), and other federal agencies to negotiate and implement legally binding, multilateral agreements that address significant sources of marine pollution. Through treaties such as the draft Global Persistent Organic Pollutants instrument, we seek to reduce risks associated with persistent and bioaccumulative substances and with other toxins that circulate in the environment. We will continue to participate in the Organization for Economic Cooperation and Development and in other international organizations to develop harmonized methods for testing and assessing toxic chemicals and for measuring the presence these chemicals in humans and the environment.

Relating Annual Performance Goals to Strategic Objectives

To reduce global and cross-border environmental risks, we have established a sequence of annual performance goals that will help us gauge our progress towards our longer-range objectives. For example, monitoring networks along the U.S./Mexico border allow us to measure progress in improving environmental quality. Our commitments to specific actions, such as sediment remediation in the Great Lakes, will continue to improve water quality. Voluntary programs to reduce emissions of greenhouse gases have been exceeding our targets, and implementation steps of the Montreal Protocol have helped reduce damage to the stratospheric ozone layer. Other annual performance goals reflect our efforts to reach negotiated goals with other countries on reducing transboundary pollution. In later years, our annual performance goals will stress the implementation of these negotiated agreements, especially in key source countries.

External Factors

The cooperation of other countries is key to the success of our Goal 6 programs. For instance, reduction of air, water, and waste pollution along the U.S. border with Mexico will require continued commitment by national, regional, and local governments in both countries. Similarly, progress towards our objectives for the Great Lakes Basin will rely on cooperation among U.S. partners—including EPA, other federal entities, state regulatory agencies, and the private sector—and counterpart Canadian organizations. Where the United States and its partner countries differ on program development or focus, or when a partner country fails to maintain environmental programs, enforce existing laws, or meet treaty obligations, the effectiveness of our initiatives might be compromised. Recovery of the stratospheric ozone layer is contingent on international adherence to commitments made under the Montreal Protocol. Similarly, the success of international agreements on toxic substances is contingent both on U.S. provision of technical assistance and financial resources to developing countries and on the commitment of other developed countries to provide similar assistance. Failing the provision of such assistance, key source countries might not develop the technical skills and management infrastructure necessary to implement the terms of such agreements.

Political considerations and other factors beyond our influence (e.g., civil strife, natural disasters, sudden economic downturns, demographic changes) might also affect progress under Goal 6. Demographic changes along the U.S./Mexico border, where the combined border population might double by 2020, could seriously strain the area's environmental infrastructure and make achieving our strategic objectives more difficult. Accounting for such factors as we develop performance measures presents a continuing challenge under Goal 6.

We also develop our international programs in conjunction with other federal agencies, including the Department of State, the Agency for International Development, the Department of Commerce, and the Department of Energy. The continued interest in and commitment to environmental initiatives among these partner agencies will influence the success of our programs. The same holds true for our cooperative programs with state and local governments, especially along our national borders. The continued collaboration of business and industry

groups, environmental organizations, and multilateral organizations (such as the World Health Organization) will also affect the success of these programs.

Finally, the integration of environmental issues into trade policies poses particularly difficult challenges. Numerous countries fear that the linkages between trade liberalization and environmental protection might limit their market access. We will continue working directly with environmental ministries in other countries to demonstrate that trade liberalization and enhanced environmental protections are not mutually exclusive.

Goal 7: Quality Environmental Information

The public will have access to information about environmental conditions and human health to assist in informed decision-making and help the public assess the general environmental health of their community. The public will also have access to information and educational tools that provide for the reliable and secure exchange of quality environmental information.

Importance of This Goal

Information about the environment—environmental characteristics; physical, chemical, and biological processes; and chemical and other pollutants—underlies all environmental management decisions. Access to quality information and the analytical tools needed to understand it are essential for measuring environmental improvements and assessing progress. Clearly, the more accurate, complete, timely, and accessible is our data, the better we can make decisions and assess progress. This goal recognizes the importance of working with the public and our partners and stakeholders to collect, manage, and make available the information needed at the national, regional, and local levels to make sound decisions leading to a cleaner, healthier environment.

Informing the public and providing access to sound environmental information are essential components of a comprehensive environmental protection program. Access to environmental information enables American citizens to understand conditions and to make informed decisions about their local communities. It leads to creative and sustainable solutions to environmental problems and opportunities for pollution prevention. Quality environmental information is crucial to sound decision-making and to establishing public trust and confidence in those decisions.

The unprecedented changes in information technology over the past few years, combined with an increasing public demand for information, are fundamentally altering the way the Agency collects, manages, analyzes, secures, and provides access to quality environmental information. We are strengthening our information quality program, leveraging information maintained by other government organizations, and developing new tools that provide the public with simultaneous access to multiple data sets, allowing users to understand local, regional, and national environmental conditions.

Objectives

- Through 2006, EPA will continue to increase the availability of quality health and environmental information through partnerships and other methods designed to plan for and meet EPA's major data needs, make data sets more compatible, make reporting and exchange methods more efficient, and foster informed decision making.

- By 2006, EPA will provide access to new analytical or interpretive tools beyond 2000 levels so that the public can easily and accurately interpret environmental information.

- Through 2006, EPA will continue to improve the reliability, capability, and security of EPA's information infrastructure.

Results We Intend to Achieve

Over the next several years, we intend to provide integrated access to EPA's data holdings, analytical tools for evaluating environmental conditions and trends, and a secure environment for data storage and retrieval. These accomplishments will enable the American public to understand the environmental impacts, the opportunities for preventing pollution, and the uncertainties and complex trade-offs that underlie many environmental decisions. We will also work to improve the efficiency of data exchange with states, tribes, and industry, while reducing their reporting burdens. With help from the Agency's partners and stakeholders, we expect to achieve the following specific accomplishments:

- By 2006, EPA will create an information network for reliable and accurate data exchange that ensures 90 percent data consistency between EPA and participating states, and by 2003, achieve 95 percent accuracy in facility name and address information for facilities reporting air, water, waste, and Toxic Release Inventory (TRI) program data and implement an Agency-wide Information Plan to identify and fill our high-priority information needs.

- By 2006, EPA will meet the changing needs of the public to know more about chemical releases and, at the same time, achieve a 15 percent burden reduction from 2000 levels for facilities reporting TRI program data.

- By 2006, 75 percent of the Agency's major environmental data, information, tools, and information products created since 2001 will be available in multiple formats and distribution vehicles and EPA will have institutionalized a program of advance notification to partners and stakeholders of major information products. EPA will use advisory, educational, and outreach programs; partnerships; and customer feedback to improve our information products.

- By 2006, EPA will define, characterize, and identify the intended use of its environmental data and document any known limitations of the data for all of its new major analytical products.

- By 2006, EPA will develop new analytical tools that will enable all stakeholders and state and tribal partners to query data for their own specific purposes, provide access to new types of environmental or health data that are relevant to localities, facilitate the public's access to state and other data, and increase by 10 percent, compared to 2000, the number of communities with real-time environmental information.

- By 2006, all EPA information technology services will meet or exceed industry and national standards for combined cost and quality of service.

- By 2006, EPA will localize the impacts of security incidents and threats by creating a fully segmented network and will employ advanced methods to authenticate users on the most sensitive parts of the network.

Means and Strategies

In October 1999, the Administrator of EPA created a new information office for the Agency with central responsibility for information management, policy, and technology. The new Office of Environmental Information (OEI) will lead the Agency's efforts to keep pace with the rapid advances in information technology and meet the growing demand for high-quality environmental information. Cooperation and collaboration with our federal, state, and tribal partners, local governments, and interested stakeholders will be crucial to our success.

EPA is now working to ensure that we can meet the environmental information needs of the future. Our principal strategy for achieving this outcome will be the development of an Information Plan that identifies EPA information needs and sources for fulfilling those needs in the future. In preparing this Plan, EPA will look forward over a period of years to assess the Agency's environmental direction and match the information and technology resources to meet the need for complete, compatible, accurate, accessible, and secure environmental information. Our Information Plan must take into account environmental outcomes, regulatory requirements, and public needs. EPA will continue to work with state and tribal governments through existing forums, such as the Environmental Council of the States and the Agency's Tribal Caucus, and to involve state and tribal representatives on specialized advisory work groups and task forces. We will continue and expand our outreach to the public and to industry stakeholders through public meetings and the use of public advisory committees.

The Agency's information activities will be guided by six strategic principles:

Expand Americans' Right-to-Know About Their Environment
Providing the public electronic and non-electronic access to EPA's environmental data and information resources supports our mission and our partners' and stakeholders' efforts to protect human health and the environment. Increased public access advances citizens' understanding and involvement and enables them to make decisions that help protect their families and their communities.

Integrate Information
Integrating information is a key theme for EPA information programs. The Agency envisions a comprehensive data network to exchange information between EPA and states, tribes, localities, and the regulated community. The network will improve environmental decision-making, improve data quality and accuracy, ensure security of sensitive data, reduce data redundancy, and reduce the burden on those who provide and those who access information. Key features include standardized data formats, a centralized approach to receiving information, and improved access to timely and reliable environmental information.

Enhance Information Quality
To increase the value of environmental information for all stakeholders, the Agency will seek customer feedback and systematically improve information usability, clarity, accuracy, reliability, and scientific soundness. To this end, we will institute compatible data standards and ensure that data quality is known and appropriate for intended uses. Enhancing the quality of environmental information will accord all environmental players and interested parties a more accurate, comprehensive environmental "picture."

Foster Information-based Decisions
EPA recognizes the need to evaluate the appropriateness of data in the context of specific decisions. The Agency is committed to communicating information and making appropriate data and information accessible for improved environmental decision-making.

Reduce Burden
EPA will strive to streamline information collection, making it more efficient and cost-effective by reducing unnecessary cost and burden to EPA, states, tribes, and the regulated community. The Agency will critically examine the information reporting burdens we have placed on our partners and on the regulated community and ensure that all information collection addresses specific needs.

Strengthen and Secure EPA's Information Infrastructure
Strengthening and securing EPA's information infrastructure is fundamental to increasing the availability of environmental information. EPA will remain vigilant in maintaining a strong and secure information infrastructure that directly supports the mission needs of the Agency. A secure information infrastructure is essential to maintaining Congressional and public confidence in EPA's stewardship of environmental and regulatory information.

Two of these six strategic principles, integrating information and enhancing information quality, require EPA to find significantly different ways of doing business. As we improve our existing information systems and develop new ones, we must work toward an integrated information network, avoiding data redundancy, and utilizing compatible database designs, standard data definitions, and a common technological platform. This represents a departure from the old "stove pipe" way of designing information systems. Systems developers will need to think of their systems as integral components of a larger, integrated network that extends beyond EPA to our state and tribal partners.

The Agency's information technology staff resources will be a critical factor affecting our success under Goal 7. Current research in both the public and private sectors documents the difficulties of recruiting and retaining skilled information technology personnel in the current market. As our reliance on electronic information increases, it will be important to address this challenge. Similarly, our heightened emphasis on information quality will require a new "quality culture" within the Agency. Quality systems must become integral aspects of our management activities.

Relating Annual Performance Goals to Strategic Objectives

The success of EPA's information programs will be reflected in our partners' and stakeholders' increased ability to make sound decisions based on quality information to solve the nation's environmental problems. EPA is playing a major role in providing data and tools tailored to their needs. Rather than making abstract connections between improvements in information access and environmental outcomes, our performance measures for this goal emphasize outcomes that are important to EPA programs and our state and tribal partners and the extent to which we provide integrated, quality environmental information and tools to the public efficiently and effectively.

For example, to measure our progress toward increasing the availability and accessibility of quality environmental information, we will set annual goals and select performance measures that track our progress in terms of improved consistency between the data in our systems and the data held by states and tribes, decreasing error rates in our facility identification information, and increasing the number of people and organizations accessing our information. We will demonstrate our progress toward improving the public's ability to use and understand our data by (1) ensuring that the majority of our analytical products, both electronic and non-electronic, describe the appropriate uses and limitations of the data and (2) increasing the number of communities with access to real-time information about their local environment. Finally, EPA will demonstrate improvements in the reliability, capability, and security of our information infrastructure by ensuring that all of our information technology services meet or exceed accepted industry standards. We will also ensure that our information network is designed to minimize the potential impact of security threats and use the best methods for ensuring that those who access the most sensitive parts of our network are authenticated each time they access our system.

External Factors

EPA's information comes from many sources—states, tribes, and local governments; industry; federal agencies; volunteer monitoring programs; and our own environmental monitoring, assessment, and research programs. Therefore, working in partnership with state and tribal governments is an essential element of our information programs, and seeking advice and input from the regulated community and the public will ground our information programs and approaches and make them more responsive to stakeholders' needs. To achieve an integrated information network that increases efficiency and fosters information sharing, we must work

with those who provide and use EPA's information to ensure that data are used properly, maintained effectively, and protected appropriately.

We expect to see dramatic changes in technology over the course of the next five years. To be efficient and cost-effective, EPA's information systems and technology infrastructure must be flexible enough to respond to changes and take advantage of innovations in technology. As the world becomes more dependent on electronic commerce, issues such as information security have become a dominant concern in both the public and private sectors. To reduce our vulnerabilities and ensure that we can meet current and future information needs, EPA's systems and technology infrastructure must keep pace with advances in available technology.

Our evolving user community will also affect the success of our information efforts. As more states develop the ability to integrate environmental information, we must adjust our own systems to accommodate these developments. As we provide technical assistance to tribes and improve our ability to understand and address environmental issues in Indian country, the number of tribes able to interact with us electronically will increase, and their need for new and improved information tools will expand. Local citizens' organizations and the public are also increasingly involved in environmental decision-making, and their need for information and more sophisticated analytical tools is growing.

Finally, the current federal budget climate requires us to work closely with our federal partners to leverage our collective information holdings and find innovative information tools that have environmental applications. We must also consider our user community and ensure that those without electronic access have the information they need to protect their health and local environments and to participate in decisions that affect them.

Goal 8: Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

EPA will develop and apply the best available science for addressing current and future environmental hazards as well as new approaches toward improving environmental protection.

Importance of This Goal

Under Goal 8, EPA focuses on our commitment to using science and innovation to reduce risk—the possibility of unwanted, adverse consequences to human life, health, or the environment. Goal 8 also highlights our reliance on expert review and collaborative partnerships to ensure the highest level of quality and relevance in our work.

Many of the activities we describe throughout this Strategic Plan are aimed at reducing specific environmental risks. However, not all of our efforts are aimed at attaining such measurable outcomes. Much of EPA's risk reduction work under Goal 8 is designed to advance sound

science and spark innovation. The experimental nature of these activities seldom generates outcomes that we can predict and quantify in advance. For example, through our Regional Vulnerability Assessment (ReVA) program, EPA is conducting research to assess the simultaneous impact of stressors such as urbanization, pollution, and climate change to make regional predictions of environmental conditions over the next 5 to 25 years. While the ReVA program's potential to reduce environmental risk is great, it would be difficult to predict its outcome in quantitative terms with specific time lines. To ensure sound science and the highest level of quality and relevance in projects like these, EPA's work under Goal 8 promotes expert review and collaborative partnerships. EPA works with researchers who are best qualified to judge the quality of the science and with stakeholders who can comment most effectively on the relevance of innovative approaches. Through these activities, EPA strives to ensure that its risk reduction strategies, programs, and decisions are based on the best available science and the most innovative ideas.

Objectives

- Provide the scientific understanding to measure, model, maintain, and/or restore, at multiple spatial scales, the present and future integrity of highly valued ecosystems.

- Improve the scientific basis to identify, characterize, assess, and manage environmental hazards and exposures that pose the greatest health risks to the American public, including susceptible populations, by developing models and methodologies to integrate information about exposures and effects from multiple pathways.

- Enhance EPA's capabilities to anticipate, understand, and respond to future environmental developments, conduct research in areas that combine human health and ecological considerations, and enhance the Agency's capacity to evaluate the economic costs and benefits and other social impacts of environmental policies.

- Provide tools and technologies to improve environmental systems management while continuing to prevent and control pollution and reduce human health and ecological risks originating from multiple economic sectors.

- Increase partnership-based projects with counties, cities, states, tribes, resource conservation districts, and/or bioregions, bringing together needed external and internal stakeholders, and quantify the tangible and sustainable environmental results of integrated, holistic, partnership approaches.

- Incorporate innovative approaches to environmental management into EPA programs, so that EPA and external partners achieve greater and more cost-effective public health and environmental protection.

- Demonstrate regional capability to assist environmental decision making by assessing environmental conditions and trends, health and ecological risks, and the environmental

effectiveness of management action in priority geographic areas.

- Conduct peer reviews and provide other guidance to improve the production and use of the science underlying Agency decisions.

Results We Intend to Achieve

By meeting the objectives listed above, we will strengthen the Agency's ability to assess the condition of the environment and to develop alternative management strategies at the local, regional, and national levels. With the help of expert review and collaborative partnerships, we intend to attain the highest quality of scientific research and implement innovative approaches to reduce environmental risk and achieve the following specific accomplishments:

- Enhance EPA's capabilities to anticipate, understand, and respond to future environmental developments; conduct research in areas that combine human health and ecological considerations; and conduct research in social science, environmental decision making, economic valuation, and estimation of environmental costs, risks, and benefits.

- EPA will develop and use a consistent set of assumptions for its economic analyses. These analyses will be used by environmental decision makers and the general public to support decisions on adopting cost-effective, market-based environmental control measures. EPA will analyze the societal impacts, costs, and benefits of regulatory alternatives for all economically significant regulatory actions.

- The nation's environmental protection efforts will become more integrated and efficient through EPA-program and private-sector embrace of (1) sector-based approaches, (2) outreach to small businesses, (3) environmental stewardship, and (4) environmental performance incentives.

- EPA will innovate its programs and culture according to the strategic opportunities that its partners, its stakeholders, and the private sector will help identify by the use of pilot projects capable of being transferred into core functions such as permitting, rule-writing, and compliance. In addition, EPA will build its capacity to perform program evaluations in order to improve agency programs and practices.

Means and Strategies

Our primary objective under Goal 8 is to *reduce risk* by fostering sound science, encouraging innovation, and enhancing expert review and collaborative partnerships. To this end, we have adopted strategies to understand risk, prevent and control risk, evaluate the costs of risk and risk reduction, and maintain expert review and collaborative partnerships.

Understanding Risk

We are focusing on three major efforts to enhance our understanding of the significant risks

threatening our natural environment. First, based on statistically rigorous sampling schemes, we are collecting environmental data to develop indicators of ecological health at multiple spatial scales. Second, we are developing ecological risk models to help us understand the fate and transport of pollutants within watersheds and the exposure of wildlife to these pollutants. Third, we are evaluating the efficacy of various restoration schemes in maintaining the integrity and sustainability of watersheds. Our research on ecological risk focuses on aquatic ecosystems because their quality frequently reflects the state of surrounding terrestrial ecosystems.

To complement our research on ecological risk, we assess risks to human health, investigating each link in the chain of events through which environmental factors trigger deleterious effects in humans. We are developing models to understand the degree to which children and people of varying lifestyles are exposed to environmental contaminants across all media. We are also analyzing the biological effects of these contaminants, taking into account the genetic variability in people's response to them.

Beyond our research into existing risks, we recognize that to prevent damage to human and ecosystem health, we must detect, describe, evaluate, and mitigate or eliminate stressors before damage occurs. Therefore, we are building the institutional capacity to forecast and prepare for emerging risks.

To further EPA's efforts to understand risk, regional laboratories have established the Centers of Applied Science program. Developed initially to address specific regional needs, the Centers offer specialized analytical expertise with broad application to other geographic and analytical areas. These Centers' activities are planned across regions and include active training and information dissemination programs.

Preventing and Controlling Risk

EPA looks for sources of innovation outside the Agency by partnering with individual facilities, industrial sectors, and communities. By providing industry with expedited or consolidated permitting, reduced record-keeping and recording requirements, and other opportunities for regulatory flexibility, we are creating opportunities for firms to focus on improving environmental performance rather than merely complying with the law. We are also supporting the creation and effective functioning of networks of local governments, citizens, planners, and others who are concerned about environmental issues that affect the quality of a community's life.

EPA also promotes pollution prevention and reduction by developing more environmentally compatible technologies and facilitating their introduction into the marketplace. As part of this strategy, we are assisting industry in adopting cost-effective production processes that minimize environmental harm; providing grants to encourage research into environmentally friendly technologies; and completing protocols to test and verify the efficacy of environmental technologies.

As we learn from these initiatives, we will develop and implement coordinated approaches to

help regulated entities achieve equal or superior environmental performance, while minimizing the regulatory burden they face.

Evaluating the Costs and Benefits of Risk and Risk Reduction

Environmental risks impose costs upon society by contributing to disease or by otherwise diminishing the quality of life. We are funding extramural research among social scientists to help us understand the value that society places on human health and natural resources. Moreover, we are developing a set of assumptions and methods that environmental professionals and the general public can use both to analyze the economic impact of regulatory alternatives and evaluate environmental protection schemes based on market incentives.

Maintaining Expert Review and Collaborative Partnerships

To foster excellence and innovation in scientific research and environmental protection, we are strengthening our alliances with external parties. We will continue our partnerships with universities and laboratories in the broader research community by funding extramural research. We also will continue to collaborate with the Science Advisory Board, a congressionally mandated panel of nongovernmental scientists, engineers, and economists who provide EPA with independent technical advice and peer review.

Relating Annual Performance Goals to Strategic Objectives

EPA's primary objectives within Goal 8 are to foster sound science, encourage innovation, and enhance expert review and collaboration. We are developing the databases, methodologies, tools, and technologies that contribute to achieving the environmental outcomes targeted under other goals. Therefore, annual performance goals and measures under Goal 8 are expressed in terms of work products and processes that contribute to environmental outcomes described elsewhere in this Strategic Plan.

For example, to foster sound science in our understanding of ecological risk, we are developing a computer-based system to assess and integrate wildlife exposures to contaminants via land, water, air, and food pathways. To foster sound science in our understanding of human health risk, we are characterizing the contamination of children's food through contact with environmental agents. To encourage innovation in preventing and controlling risk, we are establishing cross-office initiatives that integrate sector approaches to environmental protection, leading to reduced emissions and resource consumption. Other annual performance goals reflect our continuing efforts to improve the practice of social science in environmental protection, such as organizing workshops to bring economists together to explore important questions facing the Agency, including the valuation of ecological effects and childhood health effects. Moreover, to enhance expert review and collaboration within the Agency, we have established annual performance goals to complete peer review reports and develop broad stakeholder partnerships among governmental regulators, regulated industries, and non-governmental organizations to implement sector- and facility-based program reforms.

External Factors

Science and innovation are creative processes that can occur most effectively with minimal constraints. To further these processes, EPA provides grants to independent researchers over whom we exercise little control. Moreover, to the extent that we create opportunities for firms and communities to develop environmental projects, we depend on these external parties for innovations that advance environmental protection.

The general principles of sound science and innovation run through this entire Strategic Plan and are reflected in many specific examples. Ultimately, our success under Goal 8 will be measured by the degree to which all of EPA's goals and objectives embody this vision—that the Agency bases all decisions on the best available science and the most innovative approaches.

Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law

EPA will ensure full compliance with the laws intended to protect human health and the environment.

Importance of This Goal

Protecting the public and the environment from risks posed by violations of environmental requirements is, and always has been, basic to EPA's mission. Many of the environmental improvements America has made over the last 30 years can be attributed to a strong set of environmental laws and an expectation of compliance with those laws. EPA's aggressive enforcement program has been the centerpiece of efforts to ensure compliance and has achieved significant improvements in human health and the environment. By providing assistance designed to prevent violations, incentives to motivate compliance, and enforcement actions to correct violations and deter others, EPA obtains continuous improvement in compliance with standards, permits, and other requirements in addition to providing fairness in the marketplace by ensuring that noncomplying facilities do not gain an unfair competitive advantage. As a result, environmental risks are mitigated, regulated facilities do a better job of environmental management, and public demands for environmental information are met. EPA and its state and local partners are expanding the use of innovative tools for ensuring compliance by providing assistance and incentives to the regulated community.

In partnership with states and federally-recognized tribes, EPA's enforcement and compliance assurance program regulates approximately eight million entities that range from community drinking water systems to pesticide users to major industrial facilities. Almost 1.3 million of these are facilities such as municipal wastewater treatment plants, large manufacturing and industrial operations, or hazardous waste treatment and storage facilities for which performance is closely tracked and data maintained. The remaining 6.5 million entities range from small

facilities to individual property owners. Given the broad scope of regulatory requirements under the various environmental statutes and the large and diverse universe of regulated entities, the enforcement and compliance assurance program uses a variety of tools and strategies to maximize compliance.

Objectives

- EPA and its state, tribal, and local partners will improve the environment and protect public health by increasing compliance with environmental laws through a strong enforcement presence.

- EPA and its state, tribal, and local partners will promote the regulated community's compliance with environmental requirements through voluntary compliance incentives and assistance programs.

Results We Intend to Achieve

Our ultimate goal is compliance. By identifying and addressing violations of environmental statutes and regulations, EPA will work to mitigate and reduce environmental problems and associated risks. We expect to reduce pollutants, increase compliance rates for selected regulated populations, change facility operations, provide greater public access to enforcement and compliance information, and increase use of compliance incentives and assistance tools. We expect to achieve the following specific accomplishments:

- EPA and its partners will improve compliance with environmental laws where there are patterns of noncompliance or significant risks to human health or the environment by maintaining a strong enforcement presence.

- EPA and its partners will improve targeting and compliance monitoring to ensure that activities are conducted where there are high risks to human health or the environment, patterns of noncompliance, or disproportionately exposed populations.

- EPA will implement international commitments for enforcement and compliance cooperation with other countries, especially along the U.S. borders with Mexico and Canada.

- By FY 2005, EPA will complete settlements with approximately 1,000 facilities to voluntarily self-disclose to the federal government and correct violations.

- By working with other compliance assistance providers, EPA and its partners will increase the understanding of environmental requirements through the development, distribution, and use of compliance assistance tools.

- EPA will review all major proposed federal actions under the National Environmental Policy Act (NEPA) and achieve successful mitigation of at least 70 percent of adverse

environmental impacts through interagency negotiations.

Means and Strategies

The Agency will strategically target its enforcement and compliance activities. We will expand our use of more sophisticated analyses to focus on significant environmental problems and areas where we find high rates of noncompliance. Our analyses will also address the most significant risks to human health and the environment, including addressing disproportionate burden on certain populations in keeping with EPA's environmental justice responsibilities. EPA will conduct inspections and investigations, along with both civil and criminal enforcement actions, to deter violations and provide a level playing field.

While enforcement remains central to our program, we also rely on compliance assistance, incentives, and results-oriented programs. Over the next several years we will build on the innovations launched six years ago when EPA reorganized its enforcement and compliance program. Examples of innovation include: shifting EPA's role to that of a "wholesaler" of compliance assistance, providing the tools and expertise to those closer to the problem; fostering a wide network of compliance assistance providers; revising and expanding the Audit Policy and the Small Business Policy to broaden their availability and encourage even greater use by the regulated community; and developing integrated strategies that effectively blend compliance assistance, compliance incentives, and enforcement to achieve our environmental goals and objectives.

As a result of the delegation/authorization provided for by most statutes, state, tribal, and local governments bear much of the responsibility for ensuring that regulated facilities and other entities comply with requirements. Nationally, on average, states conduct over 80 percent of all inspections and are responsible for 84 percent of formal enforcement actions. States also are the primary vehicle for delivering on-site compliance assistance to regulated sources. EPA is working with tribes to develop their own compliance and enforcement programs by offering assistance and incentives and, in some cases, directly implementing federal enforcement programs.

EPA will also work with other federal agencies to implement the National Environmental Protection Act (NEPA). The Agency will review the environmental impacts of proposed major federal actions, identify ecological and public health risks, and negotiate changes to eliminate or mitigate these risks. EPA's partnerships also extend to other countries. We will work with foreign governments and international organizations to ensure compliance with U.S. laws, help build enforcement and compliance capabilities in other countries, and work to fulfill U.S. commitments under international treaties and agreements.

We will promote many types of training, including a virtual university, NETI Online, that provides Internet-based training to promote improved understanding and greater effectiveness of EPA staff. Finally, we are committed to modernizing our information systems to provide a comprehensive, readily accessible, multi-media view of environmental compliance.

Relating Annual Performance Goals to Strategic Objectives

EPA will track and report progress we make toward reducing noncompliance and achieving environmental benefits through a variety of measures, including the Annual Performance Goals and Measures included in our Annual Performance Plan. We are committed to improving our measures to report on results/outcomes of enforcement and compliance activities, enabling us to track real progress. Our efforts are paying off, as we can now demonstrate both reductions in pollutants to our environment as well as environmental improvements. Since we started tracking this data in fiscal year (FY) 1996, our enforcement actions have required reductions in emissions of nearly 5.9 billion pounds of NOx, over 700 million pounds of PCB-contaminated material, and 409 million pounds of carbon dioxide. In the past four years, we have also achieved over $479 million in environmental improvements from supplemental environmental projects.

Another example involves measuring the results of compliance assistance. In FY 1998 we reached 250,000 regulated entities through compliance assistance; in FY 1999 this had grown to 330,000 regulated entities. These and other environmental and compliance results form the foundation of EPA's current and future strategic direction. Successful achievement of our long-term objectives requires that we build on existing work as we continue to set challenging and meaningful annual performance goals and measures, emphasizing outcomes wherever possible.

The National Performance Measures Strategy (NPMS) is a critical component of EPA's performance assessment effort. NPMS includes both traditional measures, such as the number of inspections and enforcement actions, and outcome measures, such as changes in compliance rates and behavioral changes resulting from compliance assistance and pollutant reductions. These measures help EPA to obtain a more complete picture of its enforcement and compliance program and will lead to achievement of our long-term objectives. FY 2000 is the first full year of implementation of NPMS, and we anticipate a fuller discussion of results in coming years.

External Factors

EPA's ability to meet its enforcement and compliance annual performance goals and longer-term strategic goals may be affected by a number of factors. Projected performance would be impacted by natural catastrophes, such as major floods or significant oil spills that require a redirection of enforcement resources to address immediate environmental threats. EPA also assumes that state and tribal partners will continue or increase their levels of enforcement and compliance work. In addition, EPA relies on the Department of Justice (DOJ) to accept and execute enforcement cases. The success of EPA's activities also hinges on the availability and applicability of technology and information systems. Finally, the economic conditions and the regulated community's level of effort and willingness to comply with the law will greatly influence EPA's ability to meet its goals.

Goal 10: Effective Management

EPA will maintain the highest quality standards for environmental leadership and for effective internal management and fiscal responsibility by managing for results.

Importance of This Goal

Activities under this goal support the full range of Agency activities for a healthy and sustainable environment. Agency management provides vision and leadership–within EPA, nationally, and internationally–and support for all Agency programs. The effectiveness of EPA's management approaches will determine, in large measure, how successful we will be in achieving all the goals identified in this Strategic Plan. Sound leadership, proactive management of human capital, rational policy guidance, innovation, quality customer service, consultation with stakeholders, results-based planning and budgeting, fiscal accountability, and careful stewardship of our resources provide the foundation for everything EPA does to advance the protection of human health and the environment. In addition, work under this goal ensures that EPA's management systems and processes will be supported by independent evaluations that promote operational integrity and economic, efficient, and effective programs, allowing us to obtain the greatest return on taxpayer investment.

Objectives

- Provide vision, national and international leadership, executive direction, and support for all Agency programs.

- Demonstrate leadership in managing for results by providing the management services, administrative policies, and operations to enable the Agency to achieve its environmental mission and to meet its fiduciary and workforce responsibilities and mandates.

- Effectively conduct planning and oversight for building operations and provide employees with a quality work environment that considers safety, new construction, and repairs and that promotes pollution prevention within EPA and with our state, tribal, local, and private partnerships.

- Provide audit, evaluation, and investigative products and advisory services resulting in improved environmental quality and human health.

Results We Intend to Achieve

EPA continues to face significant challenges in streamlining business processes and launching innovations, while ensuring sound management of its administrative and financial services. In the coming years, we will work to improve the delivery of services we will need to meet our environmental mission. We will build on past achievements and continue to focus on identifying customer needs and expectations; using innovative technologies and designs; improving program

results and operational business practices; and developing a highly-skilled workforce to meet the needs of the 21st century. We expect to achieve the following specific accomplishments:

- The Office of the Administrator will design and implement policies that protect human health and the environment and ensure that program activities and decisions reflect those policies.

- Provide Agency policy direction and guidance on equal employment opportunity (EEO), civil rights, and diversity issues.

- EPA's Environmental Appeals Board will issue decisions in active permit and enforcement cases within an average of 12 months.

- By 2005, 80 percent of actions brought before the Administrative Law Judges will be completed within 12 months of receipt.

- Cost-effective investment in environmental protection and human health will be made through responsible, results-based, high quality strategic and fiscal resources management and accountability.

- Effectively prepare EPA for future challenges by streamlining administrative processes, strengthening the integrity of resource management and internal controls, building employee skills, fostering diversity, and giving superior customer service.

- The Agency will provide a healthy, safe, and secure environment for EPA employees and maintain service, essential facilities, and operations in an efficient and cost-effective manner.

- By the year 2002, all headquarters employees will be consolidated in a new facility, and by 2001, Research Triangle Park (RTP) employees will be moved into a state-of-the-art facility.

- Provide facility and administrative services to support all regional programs in their mission.

- Return two times the value of the annual investment in the Office of Inspector General (OIG) by making recommendations for potential savings, risk reductions, recoveries, process changes, and enforcement actions.

Means and Strategies

EPA will employ five, overarching, corporate management strategies to advance the protection of human health and the environment. These strategies cut across all organizational boundaries and are key to performing the Agency's mission.

Providing Results-Based Leadership
EPA will ensure that its leadership is of the highest caliber and accountable and responsive to the needs of our Congressional, state, tribal, local, and private partners. We will provide leadership and direction to improve the quality of the environment while employing innovative approaches and partnerships.

Managing Human Capital
As we enter the 21st century, a key EPA priority will be managing human capital. EPA strongly believes that the Agency's human resources are our most valuable asset, and we will work hard to secure, develop, empower, and retain the talented people we need to accomplish our environmental mission. This effort will include workforce planning, to ensure that human capital requirements are aligned with strategic goals, and training, to enable our workforce to deliver national leadership and science and technology expertise in environmental protection.

Investing In Infrastructure
Consistent investments in core infrastructure are critical to provide a safe and healthy work environment and to maintain new state-of-the-art facilities and laboratories. These facilities provide the tools essential for researching innovative solutions to current and future environmental problems and enhancing our understanding of environmental risks. In addition, the Agency is building a national framework for identifying and sharing energy efficiency and pollution prevention techniques appropriate for both public and private sector laboratories.

Streamlining Business Processes And Meeting Customer Needs
We intend to establish world-class business processes by streamlining, improving, and automating our administrative systems to provide the best customer service at the least cost. We will use system integration tools, such as enterprise resource planning and knowledge management, to develop innovative, secure technologies that enhance business processes in financial management, payroll, human resources, grants, and contracts.

Strengthening Program Integrity
EPA is committed to working with Congress, our oversight agencies, and our state and tribal partners to protect the integrity of Agency programs. We will expeditiously address management challenges and program risks identified by OMB, GAO, and EPA's OIG. We will also continue to establish early warning systems and other controls to prevent vulnerabilities from becoming major management issues.

Relating Annual Performance Goals To Strategic Objectives

To achieve effective management, we will be working towards objectives in four areas: (1) executive leadership, (2) management and administrative services, (3) building operations and new construction, and (4) audit and investigative services. We have established annual performance goals and measures that will enable us to track our progress in these areas. Specifically, our annual performance goals and measures focus on providing results-based leadership, managing human resources, investing in infrastructure, streamlining business

processes and meeting customer needs, and strengthening the integrity of our management processes. We will provide executive leadership that promotes policies and actions that protect human health and the environment and builds effective partnerships. In the area of managing human resources, we are concerned with measuring Agency efforts to create a highly skilled workforce to meet the future needs of the Agency. In investing in our infrastructure, we seek to ensure that EPA provides a healthy and safe work environment and that employees are equipped with the tools they need to accomplish the Agency's mission. Other performance goals and measures focus on measuring improvements to critical processes that support EPA's mission, such as financial services and management of contracts and grants. Finally, to support our objectives for delivery of audit and investigative services, we have established goals and measures to strengthen the integrity of EPA programs. Taken together, our annual performance goals and measures link program efforts directly to strategic objectives in order to promote vision, leadership, and accountability throughout the Agency.

External Factors

We have identified no external factor which will affect our achievement of this goal.

Chapter 3: Cross-Agency Programs

Over the past 30 years, EPA and our partners have made substantial progress in addressing human health and environmental issues. Many of these advances have been the result of conventional regulatory approaches. However, EPA has grown increasingly aware of the need for integrated strategies for solving complex environmental problems.

In this chapter, we highlight EPA programs that depart from standard approaches. These programs promote partnerships with states and tribes and enlist the efforts of others outside the Agency in our environmental protection work; cut across traditional media and organizational boundaries; and consider, with a more comprehensive view, the risks posed to particular or vulnerable populations.

State Partnerships

Program Description

Most of the nation's environmental laws envision a strong role for state governments in implementing and managing environmental programs. As state environmental authority and management capacity have grown over the past two decades, EPA has delegated to states primary responsibility for many day-to-day environmental program activities such as issuing permits, conducting compliance and enforcement programs, and monitoring environmental conditions. State administration of environmental programs, with EPA oversight to ensure compliance with federal statutes and achievement of national objectives, has brought about significant environmental improvement throughout the country. In short, state performance is fundamental to the achievement of EPA's goals and objectives, and a strong partnership between EPA and the states is essential for the protection of human health and the environment.

In May 1995, EPA and state leaders made a commitment to establish a joint partnership for environmental protection. The National Environmental Performance Partnership System (NEPPS) provides for EPA and states to set priorities jointly; negotiate NEPPS Performance Partnership Agreements (PPAs) that define their roles and responsibilities; find flexible ways of implementing environmental protection; work together to define a set of core performance measures (CPMs) that will demonstrate the environmental results they have achieved; and evaluate their success.

Five years after the signing of the NEPPS agreement, in March 2000, EPA's Acting Deputy Administrator issued a memorandum reaffirming EPA's commitment to the performance partnership system and to setting environmental priorities jointly with states through the negotiation of PPAs. The Environmental Council of the States (ECOS), an organization of State Environmental Commissioners, responded in kind with a resolution that reaffirmed the states' commitment to NEPPS. These renewed commitments demonstrate EPA's and states' continued

resolve to work together towards more integrated and strategic environmental management, increased pollution prevention, and enhanced environmental quality.

Objectives

- Promote greater collaboration in solving environmental problems, with states and EPA working together more effectively to take advantage of their relative strengths.

- Based on an assessment of environmental conditions and needs, target priorities which are likely to achieve the greatest environmental and human health benefits.

- Increase the use of actual measures of environmental and human health conditions, thereby achieving a better balance with traditional program activity measures.

- Expand the number and type of protection strategies available to include more integrated and flexible approaches such as pollution prevention, ecosystem management, and compliance assurance.

- Tailor the amount and type of EPA oversight to the strengths and needs of individual states.

- Analyze and understand the results of protection efforts and consult with and inform the public about environmental and human health conditions and strategies for resolving remaining problems.

Means and Strategies

From its inception, NEPPS has been an ambitious initiative. To achieve its goal of demonstrable improvement in the nation's environment as a result of close cooperation between the states and EPA, the NEPPS process requires that states and EPA understand and adapt to each others' roles and responsibilities and maintain good communications.

To this end, EPA will continue to work with states to negotiate and implement PPAs that clarify our respective roles and responsibilities. In tandem with PPAs, EPA will use its authority to allow states to combine funds from multiple categorical grants into one or more Performance Partnership Grants (PPGs). PPGs encourage states to develop innovative ways to address their highest environmental priorities across all media; link their program activities more effectively with environmental results; and devise improved pollution prevention, cross-media, ecosystem, and community-based strategies. We will continue to work with states to improve the flexibility in PPGs, thereby ensuring that federal funds and resources are applied to the highest environmental priorities.

Another NEPPS priority is the joint EPA/state effort to develop a set of core performance measures (CPMs) that reflect states' program priorities and will help gauge their progress in

protecting human health and the environment. EPA and states will continue to seek better measures of actual environmental conditions as the indicators of program effectiveness, leading to the development of a set of predominantly outcome-oriented CPMs by fiscal year 2006.

EPA has incorporated a variety of methods to improve NEPPS in our 2000 work plan, and we will continue to develop work plans each year. Our current workplan, which reflects a number of recommendations to improve NEPPS implementation provided by the General Accounting Office and the National Academy of Public Administration, focuses Agency efforts on providing leadership for NEPPS efforts among the states and at all levels at EPA; developing guidance to make PPA development and quality more consistent nationwide; integrating NEPPS concerns into EPA's internal processes, particularly strategic planning and budgeting; and improving the use of outcome-based CPMs in PPAs to paint a picture of the state of environmental protection nationwide. In addition, based on a survey of NEPPS-related training that is available now and that will be required in the future, we will work to improve Agency training programs and develop new tools and approaches.

Taken together, these efforts will promote EPA/state partnerships and help to advance our ability to work together to achieve efficient and effective environmental and public health protection.

Tribal Partnerships

Program Description

American Indian culture and way of life are inextricably linked to the environment, and the very existence of tribal people is threatened by the substandard environmental conditions that persist in Indian country. Unique cultural and legal issues and complicated federal Indian law present challenges to the coordination and implementation of environmental management activities in Indian country. As a result, these issues must be addressed through innovative approaches and a coordinated federal program that works in partnership with tribes.

In 1994, Administrator Browner established the American Indian Environmental Office (AIEO) to lead the individuals and organizations in the Agency that comprise EPA's Indian Program. Consistent with our government-to-government relationship and commitment to conserve natural resources for cultural uses, EPA's Indian Program advances our trust responsibility to federally recognized tribes by ensuring the protection of human health and the environment in Indian country.

Objectives

The Indian Program has established three overall objectives to help achieve its mission:

- Advance health and environmental quality in Indian country through increased implementation of environmental programs.

- Enhance the relationship between tribes and EPA to promote more effective partnerships.

- Promote consistency within EPA, and improve coordination with other federal agencies.

Means and Strategies

To improve the environmental programs being implemented in Indian country by tribes or by EPA, the Indian Program will launch a number of initiatives to assess tribes' current needs, funding, capabilities, and priorities. This will be accomplished by completing the baseline assessment of environmental conditions in Indian country; continuing the establishment of formal environmental management agreements; and working cooperatively with tribes to implement the agreements. The Indian Program will use the information gathered through the baseline assessment and the environmental management agreements to develop innovative ways to continue to increase tribal capabilities to implement and manage environmental programs. Although EPA will continue to provide funding directly to tribes, we will also be working on creative ways to increase Agency resources dedicated to the tribes' environmental issues and to remove legal and procedural barriers to program implementation.

EPA cannot achieve its goals without working closely with tribes, so the Indian Program is taking a number of steps to help build more positive relationships and more effective partnerships. EPA will improve the internal and external communications infrastructure for the Indian Program. Internally, the Agency will increase training for all staff on how to work effectively with tribal governments, and the Agency will keep tribes better informed about the activities and accomplishments of the Indian Program through an annual accomplishments report. Finally, the Indian Program also plans to increase its support to advisory organizations, including the National Indian Working Group, Tribal Operations Committee, Regional Tribal Operations Committees, and the Senior Indian Program Managers to promote more effective use of these organizations.

Although the Indian Program encompasses a variety of activities and organizations, it is important that its efforts remain consistent across the Agency and are well coordinated with those of other federal agencies. To promote internal consistency, the Agency will be developing innovative models for common tasks, such as permitting, that are performed throughout the Agency. While these models will offer a more consistent approach, they will remain flexible enough to meet the needs of individual tribes. EPA will coordinate with other federal agencies that have related responsibilities to assist tribes in assuming environmental programs and working on environmental problems cooperatively and consistently. Finally, EPA will work with tribes and states to establish mechanisms to resolve issues around common environmental concerns.

Persistent Bioaccumulative Toxics Initiative

Program Description

Persistent Bioaccumulative and Toxic (PBT) chemicals, which include mercury, lead, and polychlorinated biphenyls, present a particular threat to human health and the environment because they are toxic, persist in ecosystems over long periods of time, and accumulate in fish and up the food chain. Children, whose bodies are still developing, and individuals who consume large quantities of fish are especially vulnerable to risks posed by PBTs.

Because PBTs can travel long distances, move between air, water, and land, and linger for generations, EPA's traditional, single-statute approaches offer only limited solutions to reducing risks from PBTs. Therefore, EPA has designed an Agency-wide PBT Initiative (PBTI) which employs all of EPA's tools–regulation, compliance and enforcement, research, voluntary actions, and international negotiation–to reduce PBTs that have been identified as priorities. The PBTI relies upon a variety of innovative, coordinated, cross-office activities that maximize our efforts to protect human health and the environment from PBT risks.

Objectives

- Substantially reduce risks to human health and the environment from current and future exposure to priority PBTs, and stop the cycling of these chemicals through all environmental media.

- Institutionalize a multimedia, cross-program approach to setting Agency-wide priorities for further reducing and preventing pollution from priority PBTs, using all available tools.

Means and Strategies

EPA has organized the PBTI to address PBTs across media and across offices, through development of a long-term implementation plan. This plan focuses on implementing regional/state projects, leveraging activities with our partners and stakeholders, meeting cross-cutting monitoring and measurement needs, and improving right-to-know and assessment information, such as fish advisories for the public and risk assessment tools for industry use.

To ensure that we meet our PBTI objectives, we will continue to apply cross-media, cross-office approaches. This is particularly important in order to determine the sources of PBT contamination of water bodies in the United States. EPA is coordinating an effort under the Clean Air Act and the Clean Water Act to develop models that will allow the Agency to better identify local sources of mercury, a priority PBT. We expect regulations affecting municipal waste combustion and medical waste incinerators to reduce airborne mercury emissions by about 100 tons per year. In addition, EPA will develop protective water quality criteria to address the most toxic and pervasive PBTs.

EPA will work with our partners and stakeholders to develop and begin to implement National Action Plans for the first set of 12 priority PBTs. As part of these Plans, we will pursue opportunities for working within sectors or geographic areas to address several pollutants at the same time. In fiscal year 2000, EPA will select a second set of Agency-priority PBTs, and in fiscal year 2001, we will complete development of the Plans to address these emerging priorities. Under these Action Plans, the Agency will assess the current levels of priority PBTs in the environment and in human populations and will track progress in reducing these PBTs.

In implementing specific action plans, EPA will encourage voluntary partnerships with industry and other stakeholders. We will work with industry to identify risks, evaluate new approaches, improve compliance, and ultimately implement cleaner production technologies. For example, our Resource Conservation and Recovery Act program will focus on waste minimization, working with industry to reduce PBTs of highest concern in waste streams. We will promote projects that will achieve measurable reductions quickly. For example, we are working with the American Hospital Association to virtually eliminate mercury in hospitals. We will continue to conduct similar efforts with other sectors that use or release priority PBTs and will work with partners and stakeholders to develop and expand use of tools such as the technology industry market forum and the PBT profiler.

A priority for EPA is measuring and monitoring PBTs. Facilities will begin to report PBT chemical releases under a new Toxic Release Inventory rule. EPA will gather information on key areas, such as mercury releases from utilities and the impact of storm water runoff. In addition, we will continue our nationwide study to document the extent and nature of fish tissue contamination by PBT chemicals which had not been considered in an earlier study.

On the international front, EPA will work with Environment Canada and lead domestic partners to implement the Great Lakes Binational Toxics Strategy. The purpose of this binational strategy is to set forth a collaborative process by which EPA, Environment Canada, Great Lakes states, the Province of Ontario, and Indian tribes will work in cooperation with their public and private partners toward the goal of virtual elimination of PBTs from the Great Lakes Basin in order to protect and ensure the health and integrity of the Great Lakes ecosystem.

In addition, EPA expects negotiations on a global convention for persistent organic pollutants (POPs) to be successfully concluded by December 2000. We will participate in capacity-building projects to support key developing countries' efforts to comply with the POPs convention. Projects will include working with the World Health Organization's "Roll Back Malaria" Program to phase out the production and use of DDT around the world and providing support to Asian countries, particularly Indonesia and other Southeast Asia countries, as they work towards an eventual phase-out of leaded gasoline.

Finally, we will emphasize research to help prevent the introduction of PBTs into the environment, and we will target our research efforts towards sectors producing large quantities of PBTs. We will make the most of our research resources by addressing suites of PBTs that share common characteristics.

Protecting the Environment Through the Sector-Based Approach

Program Description

EPA has been exploring innovative approaches to environmental protection that go beyond traditional media-specific or chemical-specific programs. One such innovation, the sector-based approach, focuses on a particular business, service, or industrial sector to achieve more efficient, effective, and timely environmental results. When an industry works with government and other stakeholders to consider releases to all environmental media comprehensively, they see more clearly the environmental and economic value of preventing pollution at the source. Incentives can be tailored to meet the needs of the sector. Further, we have found that sector projects that encompass various Agency core functions such as permitting, rulemaking, and compliance/enforcement help establish critical links between different parts of EPA, as well as between EPA and our co-implementers at the regional, state, and local levels.

The sector-based approach was demonstrated through the Common Sense Initiative (CSI), a 1994-98 pilot program for six large and small industry sectors. Based on our experience with CSI and other sector initiatives such as Design for the Environment (which focuses on alternative technology development), the Sustainable Industries program, (which creates incentives and removes barriers to better environmental performance), and web-based Compliance Assistance Centers (which provide industry sector-specific information to promote compliance), sector work is being further integrated into EPA's core functions. Creation and implementation of the fiscal year 1999 and 2000 Sector Action Plans have reinforced our integration efforts: the 2000 Plan strongly encourages cross-Agency, multi-media, sector approaches. As part of this effort, it is important for us to consider when and how the sector approach works with other approaches to environmental protection. For example, facility-based programs like Project XL (Excellence and Leadership) and Performance Track (a new program for motivating and rewarding top environmental performance) present opportunities for sector-wide application. Also, watershed and community-based approaches must deal with broad economic sectors like transportation, as well as with the impact that several facilities in the same industry may have on the community.

Objectives

- Promote better compliance with environmental laws and more diligent corporate stewardship by facilities in defined sectors through a combination of incentives, voluntary actions, and streamlined regulatory procedures. Measure performance and report results.

- Develop and implement a 5-year Strategic Framework for EPA's Sector Programs which includes an overarching vision for the sector-based approach. This strategy will complete the transition from CSI as a demonstration program to the integration of the sector-based approach into EPA's core functions.

Means and Strategies

EPA will develop more sector-specific, comprehensive stewardship programs that involve industry, state and local governments, and other partners and stakeholders. We will complete implementation of the Metal Finishing Strategic Goals Program and develop similar, targeted programs in other sectors. We will expand efforts to integrate sector-based strategies into core Agency functions such as permitting, coordinated rulemaking, enforcement and compliance, regional problem-solving, voluntary partnerships, research, and international activities. We will implement a wide range of sector-specific innovations to promote "cleaner, cheaper, smarter" performance that outpaces the results achievable under typical regulatory programs. In established programs like Sustainable Industry and Design for the Environment, we will further identify, test, and implement innovative approaches tailored to individual sectors' needs and opportunities. We will also identify innovations from the Project XL and other facility-specific demonstration projects that are appropriate for sector-wide implementation, and we will implement more sector-based pilot projects to test new innovations.

By revising the Agency's 1984 Small Business Strategy, we will raise EPA's awareness of sector issues and help small business sectors meet and exceed their environmental responsibilities. We will develop strategies for operating existing Compliance Assistance Centers more cost-effectively, thereby making resources available for establishing new Centers to serve sectors dominated by small- to medium-sized entities.

In collaboration with representatives from broad economic sectors and other key stakeholders, we will design and test innovative strategies for improving livability and protecting public health and the environment in America's communities. We will provide resources, information, and new analytical tools to state and local governments and the economic development community to help inform decisions and create new incentives for more environmentally beneficial development. We will also work with the real estate industry, economic development industries, and communities to encourage smart growth and improve community livability through programs that improve air and water quality, revitalize brownfields, and preserve open space.

We will help stakeholders in the transportation sector reduce traffic congestion, improve air quality, and enhance the local quality of life. In collaboration with the U.S. Department of Transportation, state departments of transportation, and metropolitan transportation organizations, we will offer more regulatory credit for air quality improvements that result from better coordination of transportation and land use. We will work specifically with the freight transportation sector on strategies to minimize air pollution, increase transportation efficiency, and lower costs. Finally, we will work to remove regulatory barriers and other disincentives to smarter growth.

Environmental Health Risks to Children

Program Description

Children face significant and unique health threats from a range of environmental hazards. They are often more heavily exposed and more vulnerable than adults to toxins in the environment. Pound for pound, children breathe more air, drink more water, and eat more food than adults. Children's behavior patterns, such as playing close to the ground and putting hands-to-mouth, increase their exposure to potential toxins. In addition, children's body systems are still developing, so they may be less able than adults to metabolize, detoxify, and eliminate toxins. Environmental risks to children include asthma-exacerbating air pollution, lead-based paint in older homes, treatment-resistant microbes in drinking water, and persistent chemicals that may cause cancer or induce reproductive or developmental changes. Toxic injury to developing organ systems can carry lifelong consequences.

Assessing health risks to children from environmental pollutants is a major concern for EPA. In 1995, EPA announced a new Agency-wide policy to ensure that environmental risks to children's health are explicitly and consistently evaluated in our risk assessments, risk characterizations, and environmental and human health standards. In late 1996, the Agency also issued its National Agenda to Protect Children's Health from Environmental Threats. This Agenda builds and improves upon current Agency-wide activities to ensure a consistent approach in improving our risk assessments and national standards specifically to protect children. EPA will also be able to assure the American people that, based on the best scientific information, risks to children are fully considered in all of our national health-based environmental protection efforts.

Our Objectives

- Conduct and support research relating to children's environmental health.
- Work to ensure that EPA regulations and standards explicitly consider risks to children.
- Implement community-based public awareness and education programs on children's environmental health issues.

Means and Strategies

EPA intends to work with our partners, including other federal departments such as the Department of Health and Human Services and the Department of Housing and Urban Development, to ensure that every individual, government agency, corporation, community, and organization will understand the link between children's health and the environment and will take positive action to improve children's health-related environmental problems. We will continue to focus efforts in two broad categories: building infrastructure and capacity and conducting public education and outreach.

Building Infrastructure and Capacity

It is critical that organizations responsible for caring for families and children make protecting children from environmental threats an integral part of the way they do business. Therefore, EPA is investing substantial effort to ensure that children's environment-related health protection is institutionalized in federal agencies (including EPA), states, and private sector entities such as health care providers.

EPA intends to coordinate children's health issues across the Agency and with states. As health-based standards are developed or revised, for example, EPA will ensure that they are protective of children. We will implement the interagency Asthma and Lead Poisoning Prevention Strategies, which were developed under the auspices of the President's Task Force on Children's Environmental Health Risks and Safety Risks. We will also ensure implementation of the 1997 Declaration on Children's Environmental Health, continue to support efforts such as the International Conference on Children's Environmental Health, and develop a work element for the Commission for Environmental Cooperation (CEC).

EPA will conduct research on children's susceptibility and exposure to pollutants to ensure that we use the best information in developing protective measures for children. This includes working with other federal agencies and academic institutions to identify and expand research on children's environment-related health. EPA also plans to conduct a feasibility study for a long-term longitudinal cohort study of the impact of exposure to environmental pollutants on children. Working with health care providers, we will continue to convey information on environmentally related illness to primary health care providers (physicians, nurses, nurse practitioners, physician assistants, nurse midwives, and community health workers) through the traditional training and continuing education system.

Conducting Public Education and Outreach

Communities, parents, and other caregivers can do much to reduce children's exposure to pollutants. EPA will provide information and technical assistance to parents, teachers, communities, and environmental and health professionals so they can take responsibility for protecting children from environmental health threats in their homes, schools, and communities. We will expand the Child Health Champion Campaign, designed to empower local citizens and communities. In addition, to help youngsters become informed adults, we will work with youth organizations on children's environment-related health issues.

Environmental Justice

Program Description

EPA's mission is to protect human health and to safeguard the natural environment—air, water, and land—upon which life depends. This mission holds true for *all* Americans, regardless of their race, color, national origin, culture, education, and income or where they live, learn, and work. In our 1997 Strategic Plan, EPA stated that to accomplish our mission, we must ensure that "all parts of society—communities, individuals, business, state and local governments, tribal governments—have access to accurate information sufficient to participate effectively in managing human health and environmental risks."

While EPA has made significant progress in securing healthier, liveable environments, we recognize that we have not enforced protective federal environmental laws fairly and effectively, and, therefore, environmental regulatory programs have not protected human health and the environment of all communities. A number of minority and low-income communities have raised concerns that they are disproportionately exposed to environmental harms and risks. Additionally, they have contended that they do not have access to environmental information and, consequently, have not been able to make informed decisions regarding environmental and health-related issues in their communities.

The primary goals of the Agency's environmental justice program are to ensure that all Americans are protected from significant risks to human health and the environment where they live, learn, and work; to ensure that federal protective environmental laws are enforced fairly and effectively; and to ensure that all parts of society, including minority and low-income communities, have access to accurate information sufficient to participate effectively in the environmental decision-making processes.

Objectives

In order for environmental justice to be achieved for all Americans, it must remain a high priority for EPA and continue to be incorporated into all Agency programs and policies. EPA will seek to:

- Ensure that communities most disproportionately impacted by toxic releases and hazards receive fair, effective, and equal enforcement under protective environmental laws and encourage citizens in adversely impacted communities to participate fully in environmental decisions affecting them.

- Achieve source reductions in high-risk communities to ensure that all Americans are protected from significant risks to human health and the environment.

- Review all EPA regulations and identify opportunities for integrating environmental justice into the decision-making process, consistent with Executive Order 12898 and

existing environmental laws.

Means and Strategies

EPA will use a variety of approaches to ensure that all communities, regardless of race or income, are protected from disproportionate environmental risks and are fully involved in the environmental decision-making processes that affect them. We will continue to develop tools that can be used to identify communities most disproportionately impacted by toxic releases and hazards and will work to eliminate sources of pollution. In addition, we will continue to target specific activities to reduce exposure to toxins, increase enforcement of environmental regulations, and clean up high-risk communities. For example, EPA will continue to host meetings that bring together communities, local industry, and relevant agencies to share in addressing environmental problems. As part of these initiatives, we will continue to establish working committees that allow community-based organizations to be meaningfully involved in the health and environmental issues that impact their communities.

The Presidential Memorandum that accompanied Executive Order 12898 emphasized the importance of public participation as part of the National Environmental Policy Act (NEPA) process, directing that "each federal agency shall provide opportunities for community input in the NEPA process." The Council on Environmental Quality (CEQ) issued the "Environmental Justice Guidance Under the National Environmental Policy Act," which incorporates environmental justice considerations into the NEPA process. EPA will continue its efforts to enhance community participation in environmental programs by increasing education and providing technical and financial assistance to high-risk communities. We will evaluate communities' effectiveness in identifying local environmental issues and participating in the decision-making process, and, guided by the 1995 Public Participation Model Plan, we will work to increase public involvement. For example, by providing access to user-friendly, Web-based information systems that integrate environmental information with census, health, and other data, we will promote understanding of environmental issues and help communities find solutions at a local level. We will continue to hold local public meetings to ensure that all stakeholders receive the environmental information they need to make informed decisions.

Finally, EPA will continue to collaborate with our federal, state, tribal, and local government partners and with stakeholders to address environmental justice issues. We will continue to work with the Interagency Work Group on Environmental Justice and the National Environmental Justice Advisory Council (NEJAC) to discuss specific policy issues and concerns. EPA will work to ensure that all of its programs and policies promote environmental justice and will incorporate guidance on achieving environmental justice into regional Memoranda of Agreement and State Performance Partnership Agreements.

Chapter 4: Assessing Our Work and Learning from Our Results

This chapter describes the Agency's approach to assessing and learning from our short- and long-term progress in working toward EPA's goals and objectives. It covers the following four areas: (1) fostering accountability to reinforce the responsibility of program managers for achieving program results, (2) assessing and learning from our annual performance results, (3) measuring results using meaningful performance measures and benefit-cost assessments, and (4) conducting program evaluations to evaluate the longer-term effectiveness of our approaches.

Fostering Accountability

Five years ago, EPA embarked on a far-reaching effort to fundamentally change past approaches to planning, budgeting, and accountability. In March of 1996, Administrator Carol Browner announced the creation of a new Planning, Budgeting, Analysis, and Accountability (PBAA) process intended to foster results-based management and monitor progress towards achievement of Agency environmental goals and objectives.

Under this new approach, EPA produced a Strategic Plan in September 1997 that laid out long-term environmental goals and objectives. Beginning in FY 1999, the Agency's annual plan and budget were tied directly to the goals and objectives of the Strategic Plan. Finally, using the results we obtained in FY 1999, EPA prepared our first Annual Performance Report, which was released in March 2000. Currently, the performance results for FY 1999 are being used to revise and fine tune our annual goals for FY 2002. This completed the first full cycle of the Agency's new PBAA management approach.

The Agency has also integrated results-based management through direct and focused interaction between senior managers who contribute to the success in achieving each of the Agency's goals and the Deputy Administrator. This series of meetings is now in its third year and includes discussion of prior year performance results, lessons learned from those results, progress toward meeting current year goals, and progress toward meeting the long-term goals and objectives of the Agency.

Over the next five years, as we move through several more complete planning and budgeting cycles, EPA will be paying close attention to what our annual and cumulative results are telling us so that we can adjust our approaches as well as our resources to focus on the most effective activities and the highest risks posed to human health and the environment.

Learning and Improving

As a learning year, FY 1999 provided EPA many opportunities to identify and develop its capabilities in results-based management. Implementing results-based management has had a number of positive effects on the Agency. In particular, programs have been challenged to think carefully about how to define success, look beyond program activities to ultimate outcomes, and review program data quality and availability. With the strategic framework of goals and

objectives, the Agency has a more structured way in which to discuss priorities and the allocation of resources and a unifying framework for separate organizational elements. FY 1999 performance in particular has provided the basis for identifying necessary changes in annual goals and targets. It has also led many Agency programs to reassess strategies for meeting the longer-term strategic goals and objectives, reflected in many of the adjustments the Agency has made to its goals and objectives in this Strategic Plan. The Agency will have an even stronger basis for these assessments as it collects FY 2000 performance data and looks ahead to the goals and targets it has set for FY 2001.

Based on our FY 1999 performance, feedback on the Agency's Annual Plans and first Annual Performance Report, and the reassessment of EPA's strategic goals and objectives conducted for this Strategic Plan, the Agency faces a number of critical challenges:

-- Improving annual goals and strategic objectives so that a larger percentage address environmental outcomes, achieving an appropriate balance of outputs, program outcomes, and environmental outcomes.
-- Continuing to assess whether the Agency's programs are measuring the right things and making the appropriate adjustments.
-- Improving the use of our integrated planning, budgeting, analysis, and accountability process as a management tool and as a vehicle for communicating with Congress and the public.

Dealing with these challenges will require continual dialogue with partners and stakeholders and the use of feedback from partners and stakeholders to improve approaches. Over the next several years, the Agency is committed to working hard to address these challenges.

Measuring Results

A key aspect of conducting results-based management is setting meaningful performance measures (measures of activities or results to help determine whether the Agency is making timely progress toward its objectives). Since first developing agency-wide annual performance goals and measures three years ago in our FY 1999 Annual Plan, EPA has made significant improvements in the quality of the Agency's goals and measures. More improvement is needed, however, to develop additional measures of programmatic or environmental outcomes that can be used to evaluate our long-term progress and ultimate impact of Agency activities on human health and the environment.

Performance measures are often described as being arrayed along a 'continuum." At one end of the continuum are the numbers of actions taken by EPA, such as the annual number of reduced-risk pesticides that the Agency registers. These measures are generally referred to as "activity" or "output" measures. Further along the continuum are measures of intermediate results of EPA activities. These measures are generally referred to as programmatic or "intermediate outcome" measures. An example of this would be the number of acres treated with reduced-risk pesticides. At the furthest end of the continuum are measures of impacts on environmental quality, human health, or ecosystems. These measures are generally referred to as environmental or "end

outcome" measures—such as the levels of pesticides found in drinking water and in food or the number of occurrences of illnesses caused by pesticides in drinking water and so forth.

For some EPA programs or activities, however, environmental outcome measures of performance are impractical or technically infeasible right now. For example, it is not always possible to obtain accurate information on environmental results without imposing unreasonable reporting burdens on states or regulated entities. In other cases, the links between EPA activities and environmental results are very indirect or gradual, requiring many years to take full effect. As a result, it may not be feasible to link EPA activities during a specific year or years to specific environmental improvements.

Nevertheless, intermediate measures of outcomes, such as measures of customer satisfaction, cost-effectiveness, industry compliance, and so forth, can be developed and used to measure programmatic results. Moreover, EPA is committed to improving the national information base on environmental quality and associated impacts on health and ecosystems by cataloging existing environmental data and advancing environmental monitoring efforts. As data are improved, EPA will accelerate progress toward development of more outcome- or results-based measures of performance. The Agency will have a continuing need to measure outputs as they are an invaluable management tool and are frequently requested by external stakeholders.

States, along with tribes, other governmental entities, and the private sector, are primary contributors to results. To provide a common basis for tracking progress and establishing commitments between the states and EPA, the Agency has worked with the Environmental Council of the States (ECOS) to establish the National Environmental Performance Partnership System (NEPPS). Under this system, EPA and the states have negotiated goals, objectives, and "core performance measures." These agreements communicate the joint priorities, primary activity outputs, programmatic outcomes, and environmental outcomes expected from work under state environmental programs; and the assistance EPA will provide.

In recognition of the Agency's need to increase the number of outcome or results-based goals and measures, EPA's Office of the Chief Financial Officer (OCFO) has established a Performance Measurement Improvement (PMI) Team. The primary objective of this team is to support EPA's program offices in their efforts to increase the general quality and outcome orientation of the Agency's performance goals and measures.

Working with the States, Tribes, OCFO's PMI Team, and other partners, program offices have initiated various improvement projects such as improvement work teams, workshops, and special analyses to support development of more outcome-oriented measures and goals. Specific examples of program office performance measurement improvement initiatives include: the Office of Enforcement and Compliance's development of their National Performance Measurement Strategy, which includes a plan to develop more outcome-based performance measures and goals; the Office of International Activities formation of a "best practices" working group which has developed more outcome-oriented measures and goals; the Office of Research and Development's on-going analysis to identify and learn from results-based, research-related measures and goals employed by other federal agencies; and the Office of Prevention, Pesticides,

and Toxic Substances working group and cooperative agreement with Florida State University to develop more outcome-focused measures and goals.

Over the next five years, performance measurement improvement will be a continuing focus within EPA. EPA will continue to work with its partners to evaluate the availability and quality of data to measure progress in achieving its strategic goals and objectives.

Assessing Benefits and Costs

In setting goals and developing specific policy instruments to achieve these goals, the Agency uses the best available science and economic analysis. Public policy decisions are generally made on the basis of multiple criteria. Costs and benefits, equity, institutional and legal feasibility, and risk tradeoffs represent some of the criteria that are incorporated into policy discussions. Benefit-cost analysis can be used to inform decision makers and the public about the economic efficiency or overall societal impact resulting from alternative environmental programs or policies.

EPA is committed to analyzing the costs and benefits of major regulations as called for by Executive Order 12866 and law (e.g., the Unfunded Mandates Reform Act). When Agency actions are expected to impose significant costs on society, EPA conducts a regulatory impact analysis of the costs, benefits, and other anticipated economic impacts of the action. To the extent permitted by law, such analyses are used to inform regulatory option selections and to adopt cost-effective regulatory requirements. The Agency also prepares economic analyses in other instances, such as when statutes call for the preparation of economic information to support regulatory development processes.

EPA is also involved in integrated, comprehensive benefit-cost assessments of environmental programs, such as the recently published benefit-cost analyses required by Section 812 of the Clean Air Act Amendments of 1990. The reports, "The Benefits and Costs of the Clean Air Act, 1970-1990" and the companion "The Benefits and Costs of the Clean Air Act, 1990-2010" describe and compare the environmental benefits from reduced air pollution for society with the costs of pollution control investments and their impact on economic production in the U.S. economy. The conclusions reached by both studies are that the total benefits from investments in environmental protection to achieve the goals of the Clean Air Act have far exceeded the costs over these two time periods. Similar efforts to assess the benefits and costs of other programs are planned or underway. As the results of these studies become available, it is expected that they will contribute to the assessment of existing programs and assist in strategic planning and priority setting.

On an even larger scale, the Agency and the public have frequently cited data on the aggregate costs of all existing programs, represented, for example, in the 1990 EPA study entitled, "Environmental Investments: The Cost of A Clean Environment." Although that report did not directly estimate the costs to meet the specific goals in this Strategic Plan, the overall cost estimates provided a general indication of the magnitude of pollution control expenditures in the United States in the late 1980s and forecasted expenditures through the 1990s. The Commerce

Department data collection program that produced the aggregate cost estimates in this report were discontinued in the mid-1990s. Recent efforts by the Census Bureau and EPA to renew collection efforts will assist in developing more current and complete reports of these costs, which should prove useful to evaluating the economic impacts of EPA programs.

Despite substantial efforts to perform economic analyses on a wide range of Agency programs, it remains difficult to articulate the full array of economic benefits that result from preventing and controlling pollution. In concept, the benefits of less pollution can be defined as improvements in human health and the environment, including reductions in damages to plants, animals, materials, and other quality-of-life attributes. For example, to evaluate the benefits of reaching an objective for decreased pollutant releases, one must document a complex sequence of analytic steps to arrive at an assessment of the impacts.

Important prerequisites for estimating benefits include a clear scientific understanding of the linkage between an activity or condition and its effects on human health and the environment; scientifically based estimates of the incremental effects of these linkages, such as dose-response relationships, expressed in forms compatible with economic analysis; and assessments of the value of such effects to society. The assessments of risks from pollutants released to the environment, the measurement of the consequences to human and natural life exposed to these pollutants, and the quantification of the values associated with these changes, are some of the challenges facing EPA in quantifying the benefits of achieving our goals. An analysis of benefits should cover the entire spectrum of benefits, from those that can be assigned a dollar value to those that can only be described qualitatively, and from those that are direct and immediate to those that are remote in distance or time.

Consequently, in most cases, the benefits and costs of attaining the Agency's goals and objectives cannot be measured with precision. Existing information on costs and benefits of individual EPA regulations does not provide complete coverage of all of the actions needed to achieve the goals and objectives described in this Strategic Plan. Many of the costs and benefits that may be associated with these goals and objectives are either very difficult to quantify or cannot be represented in monetary terms.

Cognizant of these limitations, the Agency assesses benefit and cost information to the best of its ability and cautiously uses this information, when legally permitted, to inform regulatory decisions and other actions necessary to achieve our goals and objectives. Over time, as better benefit and cost information becomes available, this information may also be used to influence EPA's objectives and numeric targets. The continuing process of information collection and analysis will serve both to refine Agency priorities and to inform the public as to the results of EPA's programs.

Using Program Evaluations

Program evaluations provide EPA with an opportunity to examine cause and effect relationships between program activities and program performance results. The Agency has undertaken a number of evaluation activities since publication of the last EPA Strategic Plan in 1997. This evaluation work, along with ongoing assessments of annual performance goals and future program evaluations, will help EPA to assess progress towards its strategic goals and objectives, identify strategies that are working, and those that are not working, and change strategies where necessary. Some key program evaluations are described below.

Goal 1: Clean Air. Over the past few years, the Agency has conducted a number of evaluations of specific air contaminants and program methods and approaches under our Clean Air goal.

- *Reformulated Gasoline (RFG) Evaluation:* In December 1998, in response to growing concern about MTBE (methyl tertiary butyl ether) in drinking water, EPA's Administrator appointed a panel to examine benefits and concerns related to RFG, MTBE (and other oxygenates); identify data gaps; and evaluate alternatives to the status quo based on their effects on air quality, water quality, and stability of fuel supply and cost. The report can be found at the following Web site: *http://www.epa.gov/otag/consumer/fuels/oxypanel/blueribb.htm*. On the basis of its evaluation of the RFG program, the panel found the following: (1) RFG has provided substantial reductions in the emissions of a number of air pollutants from motor vehicles; (2) MTBE is detected in approximately 5 to 10 percent of drinking water supplies in RFG areas showing detectable amounts of MTBE; and (3) the major source of groundwater contamination appears to be releases from underground gasoline storage systems. To address these issues, the panel recommended the following actions:
    - Improve the nation's water protection programs,
    - Reduce the use of MTBE substantially and request that Congress provide clear federal and state authority to regulate and/or eliminate the use of MTBE and other gasoline additives; and
    - Ensure that there is no loss of current air quality benefits.

  On March 24, 2000, EPA published an "Advance Notice of Public Rulemaking" of EPA's intent to initiate rulemaking pursuant to Section 6 of the Toxic Substance Control Act to eliminate or limit the use of MTBE as a fuel additive.

- *Evaluation of Particulate Matter Monitoring:* The General Accounting Office's (GAO) August 27, 1999, report, "EPA's Actions to Resolve Concerns with the Fine Particulate Monitoring Program," is available at the GAO Web site (GAO document #RCED-99-216). The report focuses on two main areas of the particulate matter monitoring program: EPA's response to a report by the National Academy of Sciences from March 31, 1998, and issues encountered by state and local agencies in implementing the program. GAO's conclusions emphasize the need for more complete field testing of speciation samplers prior to deployment. The speciation samplers will help provide a picture of which sources are contributing which components to ambient air and will help identify the sources of secondarily-formed particles. The information will be crucial for states to be

able to develop less costly control measures.

- *Redesign of Air Monitoring:* In response to anticipated decreases in monitoring resources and the growing need for monitoring of ambient air (e.g., air toxics), EPA is evaluating its current air monitoring networks and future needs. The purpose is to obtain information that will inform the development of an integrated ambient air monitoring strategy that will address resources, technologies, and logistics for monitoring all air contaminants over the long term. The evaluation is expected to be complete by mid-2001.

- *Evaluation of Prevention of Significant Deterioration (PSD):* The Agency has evaluated approximately 300 PSD permits issued over the last few years. The purpose of the evaluation is to examine the extent to which best available control determinations have been consistent nationally for similar source types and to attempt to quantify the added benefit to the environment of the PSD requirements in terms of air pollution prevented from being released to the environment. The Agency plans to use the results of the evaluation to make recommendations about whether corrective action is warranted. The evaluation is expected to be completed by mid-2001.

Goal 2: Clean and Safe Water. EPA made significant progress in the past year to enhance its capability to use program evaluations as a means for improving program performance under Goal 2. Current program evaluation activities were inventoried, and a strategy was developed that outlines specific goals, objectives, and principles for conducting priority program evaluations in the future.

- *Improving Data Quality in the Safe Drinking Water Information System (SDWIS):* In FYs 1998 and 1999, in response to concerns identified through internal audits and by outside stakeholders, EPA and its partners developed an evaluation and action plan for SDWIS, focused on improving data quality. A data quality assessment, which included a review of three years of data verification audits covering 27 states, identified significant gaps in the compliance data that states report through SDWIS. EPA and its partners devised a Data Reliability Action Plan, which sets a data quality goal, identifies activities to establish a quantitative and qualitative data quality baseline, and lists interim actions to improve data quality. The group made a number of recommendations to be implemented now and in the future: (1) increase training for states on how to determine compliance with drinking water regulations and how to enter data correctly in SDWIS, (2) increase frequency and follow-up of data verification audits, (3) improve the readability of reports on SDWIS data entry errors so that managers can use the reports as tools to improve data quality, (4) have states issue annual reminders to their utilities of sampling requirements, and (5) streamline rule reporting requirements.

- *Effectiveness of the National Estuary Program (NEP):* An evaluation of NEP was completed in FY 1999. The key objective of the evaluation was to determine whether the NEP approach has been effective in managing the nation's estuaries and what elements of the approach could serve as successful management tools for other community-based

environmental protection efforts. Major findings include the following: (1) the NEP approach benefits and improves the management of estuaries and their resources and (2) EPA can improve program success by gaining more local funding for implementation and by developing an improved structure for monitoring environmental progress.

- *Water Quality Standards (WQSs) Process:* The highest-priority program evaluation, expected to be completed in FY 2000, is a thorough evaluation of the WQSs decision-making process. As WQSs are the foundation of state and tribal water resource management programs, improvements in the development, revision and tracking of state and tribal WQSs are a critical component of demonstrating progress toward clean and safe water.

Examples of potential future program evaluations that will contribute to assessing our progress in Goal 2 include the following:

- An evaluation of the state "Rotating Basin Approach" to watershed management. The analysis could include linkages to the National Water Quality Inventory Report 305(b), which is the primary vehicle for informing Congress and the public about general water quality conditions in the United States; monitoring and assessment methodologies, and a comparative analysis of the successful state approaches (projected time frame: FY 2001).

- An evaluation of the state and tribal implementation of the Underground Injection Control Program (projected time frame: FY 2001).

- A thorough analysis of successful means to implement actions identified in state and tribal Total Maximum Daily Loads (TMDL) plans for impaired bodies of water (projected time frame: FY 2003).

Goal 3: Safe Food. EPA's progress in achieving Goal 3 has been, and continues to be, evaluated and guided by an array of outside groups. These groups provide advice to the Agency on specific pesticide issues such as risks from particular pesticides, as well as general policy issues such as emerging science policies related to Food Quality Protection Act (FQPA). The groups include:

- *FIFRA Scientific Advisory Panel (SAP)*: The SAP is a scientific peer review body composed of experts who represent the disciplines of toxicology, pathology, environmental biology, and related sciences. The SAP has played an instrumental role in evaluating some of the Agency's science-based decisions under goal 3.

- *EPA-United States Department of Agriculture (USDA) Committee to Advise on Reassessment and Transition:* This committee is a successor of the Tolerance Reassessment Advisory Committee. It is being established to provide a forum for stakeholders to evaluate EPA and USDA processes and decisions relating to tolerance reassessment under FQPA.

- *The Pesticide Program Dialogue Committee:* This committee identifies and evaluates the technical and economic feasibility of proposed changes to EPA's policies and procedures to reduce the potential risks posed by pesticides.

- *State-Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Issues Research and Evaluation Group:* This group identifies, analyzes and evaluates EPA positions on matters relating to pesticide registration, enforcement, training and certification, water quality, disposal and other areas of environmental concern related to pesticide manufacture, use and disposal.

In addition, the General Accounting Office has provided several useful studies of EPA's pesticides program, including reports on reducing exposure to residues of canceled pesticides, the pesticides reregistration program, and general food safety.

Goal 4: Preventing Pollution and Reducing Risk in Communities, Homes, Workplaces, and Ecosystems. Under Goal 4, the Agency conducted an evaluation of one of its key programs addressing a very high-risk contaminant—radon. In addition, EPA is assessing the Agency's environmental accounting project, and the pollution prevention grants program.

- *Critical Elements of the Radon Program:* In FY 1999, the Agency evaluated radon program performance to identify the most effective elements of the program. The Agency found that public interest in radon was still high and that the program was still getting significant results (more than 50,000 mitigations per year and more than 200,000 new homes built with radon-resistant techniques). This effort, Radon 2000, has resulted in a more streamlined radon program, more clearly articulated goals, and more strategically focused activities. For example, EPA determined that our public service announcements and consumer help lines were critical to public awareness and highly valued by our regional offices and state counterparts. Less critical, but important were partnerships with nonprofit organizations. In addition, the Agency reviewed and strengthened our relationships with state radon programs. The Agency continues to evaluate the success of our media campaigns on environmental tobacco smoke (ETS) and radon by assessing how often EPA's public service announcements are broadcast and comparing the value of this donated time to the cost of these announcements (for example, an investment of $500,000 of federal money in the ETS campaign has yielded approximately $19 million in donated air time). Moreover, by evaluating our ETS and radon media campaigns, the Agency determined that investing in focus group testing of the announcements produces much stronger and effective advertising. These lessons will help EPA conduct a more effective asthma media education campaign over the next several years.

- *The EPA Environmental Accounting Project (EAP):* This project is intended to encourage industry to understand the full spectrum of their environmental costs, and to integrate them into decision-making. An evaluation design commissioned by EAP recommended re-working aspects of EPA's program to facilitate its evaluation. Recommended changes to the program include incorporating performance measurement

approaches into future program directions.

- *Environmental Justice through Pollution Prevention Grants Program*: EPA is conducting an assessment of the pollution prevention grants program that is almost complete. Preliminary indications are that the Agency's program functioned effectively in its early years as a fund for innovation; and that subsequent years should focus on applying successful or promising approaches developed in the initial years.

- *Forum of State and Tribal Toxics Action (FOSTTA):* EPA holds frequent meetings with FOSTTA. This provides the Agency with an opportunity to receive feedback on our programs from state and tribal toxic program offices.

Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response. EPA is currently working on a program evaluation relating to the use of cost-benefit analysis under this goal and has completed an evaluation on the Oil Spill Program.

- *Cost-Benefit Analysis:* Recognizing the need for improved quantitative and qualitative information, EPA is currently developing a framework for improving its ability to characterize and communicate risks, benefits, and costs (including environmental, health, and other human welfare benefits). The Agency has identified a set of generic benefit and cost attributes reflecting a broad range of categories that might apply across waste management programs, and the underground storage tank (UST) cleanup program and the Resource Conservation and Recovery Act (RCRA) hazardous waste management and minimization programs have been selected as pilot studies for the practical application of these attributes. For the UST cleanup program, the focus is developing two sets of methods, one describing retrospective benefits and costs likely to have accrued between implementation of the program and the present time and the other estimating future benefits and costs through 2005. For RCRA, the emphasis is on describing retrospective benefits and costs.

- *Spill Prevention Control Center:* In FY 1999, EPA conducted a national review of its Oil Spill Program to identify the program's most effective components and share the most promising innovations underway. The review highlighted an innovative enforcement approach, the Spill Prevention Control Counter Measure Expedited Enforcement Program, designed to identify and correct low-level spills within an expedited time from of 30 to 60 days. The program review found that a demonstration pilot of this approach yielded a significant increase in both enforcement and compliance. EPA is now considering this approach for national implementation efforts in FYs 2000 and 2001.

Goal 6: Reduction of Global and Cross-Border Environmental Risks. The Agency has conducted several evaluations of our Goal 6 activities, including:

- *Assessment of Border XXI:* The U.S./Mexico binational indicators initiative identifies common U.S.– Mexico environmental evaluation measures in media and thematic categories. A primary tool for assessing progress under the binational framework for U.S.— Mexico border cooperation on the environment, the update of indicator information, will be released in Summer 2000. An assessment of Border XXI was also carried out by the Good Neighbor Environmental Board (a federal advisory committee reporting to Congress and EPA) as well as its Mexican counterpart. In addition, in 2000 the GAO reported on Agency activities supporting the development of environmental infrastructure in the border area. EPA has also received considerable input from the U.S. and Mexican border states. All of these assessments will inform the outreach effort EPA will initiate in 2000 in development of a new binational plan for cooperation on the border environment.

- *Best Practices in Capacity Building:* Based on experience in designing, implementing, and measuring the success of its international capacity-building programs, EPA has developed a set of best practices for application in its bilateral involvements. These best practices include criteria for determining EPA involvement in a program; guidelines for selecting, designing, implementing, monitoring, and evaluating projects under this program; and a methodology, including generic performance indicators, for measuring the effectiveness of the program under the Government Performance and Results Act (GPRA). The practices emphasize the establishment of baseline conditions in partner countries where the work is being carried out. EPA is now using the best practices in developing new programs, such as the Agency's microbiologically safe drinking water initiative for Central America (in connection with Hurricane Mitch Relief) and Africa. The practice of determining baseline conditions in partner countries will be integral to the successful implementation of our new trade and environment project, "The Partnership for Trade and Environment Capacity Building."

Goal 7: Expansion of Americans' Right to Know about Their Environment. During the past seven years, EPA's information programs have undergone numerous internal and external evaluations. In all cases, the Agency has reviewed the conclusions of these program evaluations and has implemented recommendations or developed processes to evaluate recommended improvements as part of a larger program improvement initiative. Some examples include the following:

- *Ensuring Data Quality:* In a continued effort to address information management issues and improve data quality, in April 1998, EPA's Deputy Administrator issued a memorandum calling for the development of a strategic action plan to implement an Agency-wide approach to ensuring the quality of data in EPA's information systems. As part of developing the Data Quality Strategic Plan, an Agency-wide work group conducted analyses of errors in EPA data and the challenges associated with developing an error correction system integrated across EPA. The Plan identifies and characterizes

fundamental factors that may cause or contribute to errors and other discrepancies in EPA data systems and makes recommendations for error prevention and an error correction process for Agency-wide implementation. EPA is using the recommendations from this internal evaluation effort as the starting point for a new strategy to address data quality issues Agency-wide.

- *Challenges Facing the Office of Environmental Information (OEI):* In September 1999, the GAO released a report entitled, *Environmental Protection: EPA is Taking Important Steps to Improve Information Management, but Challenges Remain* (GAO document #RCED-99-261). This report discusses EPA's recent information-related initiatives and the major management challenges facing EPA's new OEI. The report recommends that EPA take steps to ensure that its environmental and regulatory data are sufficiently complete, compatible, and accurate. Specifically, the report stated that EPA's ability to evaluate the outcomes of its programs in terms of changes in the environment is limited by gaps and inconsistencies in data. GAO concluded that EPA's program offices will have to overcome difficulties in establishing cause-and-effect relationships between program activities and environmental outcomes, a lack of reliable baseline data against which to measure progress and constraints on the resources for gathering and analyzing the data. This report suggested that creating the OEI would help to address these obstacles. GAO's recommendation was that the Administrator direct the OEI to develop an action plan that details the key steps the Agency needs to take to ensure that our environmental and regulatory data are sufficiently complete, compatible, and accurate to meet its needs. OEI will begin work to develop a long-term Information Plan for the Agency.

- *Improve Information Security:* In FY 2000, GAO completed a comprehensive assessment of EPA's information security program. EPA has worked closely with GAO to address the identified vulnerabilities. The Agency has developed a security network that meets industry standards while preserving our need to maintain electronic connections with others, and significantly strengthened the security of our systems Agency-wide. The Agency is continuing to work with GAO and the EPA Office of the Inspector General to evaluate and improve our security program, and we are training the Agency's staff to be vigilant of rapidly changing security vulnerabilities.

Goal 8: Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems. EPA continues to engage in efforts to evaluate the quality and relevance of its research programs. First, research proposals received in response to requests for applications undergo a rigorous external peer review. Second, the EPA Board of Scientific Counselors has evaluated the Agency's science and engineering research programs, laboratories, and research management practices and recommended actions to improve their quality and relevance to the mission of EPA. In addition, the Board has evaluated and provided advice on the use of peer review in the Agency's research programs to enhance the quality of science at EPA.

Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law. EPA uses both formal and informal approaches to evaluate the effectiveness of its enforcement and compliance assurance program. Methods range from a formal process of evaluating regional, state, and tribal performance to the use of stakeholder meetings to solicit views on effectiveness. These efforts include:

- *Stakeholder Review of Enforcement and Compliance Program:* An examination of the overall performance of the Agency's enforcement and compliance program through two program review conferences involving a wide range of stakeholders. The conferences elicited the views of participants on how EPA can improve public health and the environment through compliance efforts. Agency responses to stakeholder input include commitments to develop a national clearinghouse of compliance assistance materials, an annual compliance assistance plan, and compliance assistance tools for major new regulations. (A summary of the views demonstrated at the conferences is available on the Internet at *http://es.epa.gov/oeca/innovative/5yrfinal.pdf*.)

- *Impacts and Effectiveness of Compliance Policy:* A review of the performance of key compliance policies to determine whether they achieve the desired results. EPA evaluated the impact of its Audit Policy and the Small Business Policy and funded an independent evaluation of the effectiveness of state audit policies to determine the extent of use and the level of satisfaction of those who have used them. For example, in a voluntary, anonymous survey of 252 disclosing entities, 88 percent of the responding entities stated that they would use the EPA Audit Policy again, and 84 percent would recommend the Audit Policy to clients or counterparts.

- *Coordination with States on Clean Air Act:* An evaluation by the Office of the Inspector General of EPA's Clean Air Act compliance and enforcement program found that EPA and states need to develop a common understanding regarding the definition of a "significant violator" and actions required of the states when dealing with significant violators. Following extensive coordination with the states, EPA issued new guidance that resolves these issues and aims to improve implementation of the Clean Air Act enforcement and compliance program for both EPA and the states. (The evaluation is located on EPA's Office of Inspector General's Web site at *http://www.epa.gov/oigearth/audit/list998/810024.html*).

- *New Program Element Reviews:* An evaluation is currently being conducted by the Agency's headquarters and regional offices on the our activities to carry out the implementation, enforcement, and compliance provisions of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Worker Protection Standard (WPS). We are assessing WPS program implementation through surveys, file reviews, and interviews. Through this evaluation, EPA will develop a national picture of the strength and weaknesses of this program, so that changes can be made to improve its effectiveness. This is the first in a series of "Program Element Reviews" to be conducted by EPA in concert with the regional offices. The Agency expects to select one or two new "program

elements" (an enforcement compliance program or portion of a program) to review each year.

Goal 10: Effective Management. EPA routinely assesses and evaluates the performance of the Agency's management services, systems, policies, and processes. Each year the Agency conducts management effectiveness and oversight reviews and studies of its planning, budgeting, analysis and accountability processes as well as its financial, contracts, grants, human resources, and facility services. Based on the results of these assessments, EPA may change or refine policies and procedures, improve oversight and monitoring, enhance training, and revamp and streamline systems and procedures. Examples include the following:

- *Reviews of Management Grant Effectiveness:* In 1997 and again in 1999, each of EPA's program and regional offices conducted Management Effectiveness Reviews to evaluate grants management focusing on pre-award assistance, award procedures, training efforts; and post-award monitoring, closeout, and property management. The results of these reviews will assist EPA in assessing nationwide progress in implementing post-award management activities and identifying further actions needed to strengthen post-award management of grants. One major effort that is resulting from an outgrowth of evaluation efforts is the Grantee Compliance Assistance Initiative. This program will improve grantee post-award performance by focusing attention on post-award monitoring, especially on-site visits, and encourage continuous improvement both in the quality and quantity of post-award efforts.

- *Bench marking Financial Management:* EPA benchmarked its major financial management functions against public and private sector organizations, including industry top performers. In comparison with other organizations, EPA devotes a smaller percentage of its workforce to financial management. However, EPA's financial management systems costs are higher than public and private sector averages. EPA plans to reduce management overhead costs of its major financial and payroll systems. EPA will implement a new payroll system that reduces processing costs and customer burden and initiate a long-term solution for the replacement and integration of the Agency's financial management system.

Conclusion

Over the last several years, the usefulness of using the tools outlined in this chapter has become clear. To succeed in meeting this Strategic Plan's important health and environmental goals over the next five years, it is critical that EPA continue to focus on assessing our work and learning from our results. The Agency intends to do so by (1) holding EPA's senior mangers accountable for results as we carry out the Agency's new PBAA management approach, (2) regularly incorporating what we learned from our annual progress into our next year's planning and budgeting, (3) improving the way EPA measures our short- and long-term results, (4) accurately assessing the costs and benefits of our activities, and (5) using program evaluations to improve the Agency's approaches and ensure that our programs are as effective as possible.